The Impact of Information Systems Consultants on Small and Medium-sized Enterprises: A Theory of the Firm Perspective

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Abstract

This research aims to show the impact that consultants have on the creation of IS knowledge assets as well as the impact that they have on the development of IS competencies in SMEs. Exploratory case studies involving SMEs and consultants are used to investigate the impact consultants have on SMEs. IS knowledge and IS competencies are important themes that emerge from the exploratory stage of the study. This research further investigates the types of IS knowledge assets and IS competencies that consultants impact in SMEs by conducting further case studies with consultants and SMEs. Several propositions about the types of IS knowledge assets and IS competencies impacted by consultants are developed and tested using a longitudinal single-case study.

The results are analysed using resource-based theory and knowledge-based theory and reveals that consultants contribute to the development of experiential knowledge assets like know-how and experience, routine knowledge assets and systemic knowledge assets by influencing the knowledge creation processes of implementing SMEs. Consultants enhance and contribute to the development of the Management of IT competence which relates to the SME's ability utilise IS. However, the results also show that consultants compensate for other IS competencies: strategy and vision; sourcing and alignment; and systems and infrastructure. These competencies relate to the SME's ability to integrate IT with business processes, to source and alignment IT/IS and to engage in business and IS strategic thinking.

It is proposed that in addition to overcoming the knowledge barrier in SMEs, consultants are an essential part of the IS knowledge-creation process. Additionally, consultants compensate for IS competencies which are abilities; however, it is noted that if an on-going relationship develops between the consultants and SMEs then SMEs

may, over time, develop IS competencies related to business and IS strategic thinking, management of IT and, sourcing and alignment.

1 Introduction

1.1 Introduction

Consultants contribute significantly to the implementation of information systems (IS) in small and medium-sized enterprises (SMEs); yet the pivotal role consultant engagement plays on the use and management of IS in SMEs has not been fully researched. Little is known about the way in which consultants influence SMEs. This thesis seeks to explore the consultant's impact during the implementation of IS, specifically focussing on the design and delivery of accounting packages.

This chapter introduces the study designed to address the issue stated above, and also provides the context for the study. New Zealand, the country chosen for this study, provides for research since it is a nation where SMEs abound. Over the last six years the information technology (IT) consultant sector in New Zealand has experienced significant growth (Statistics New Zealand, 2010), a testament to their importance in the New Zealand economy.

Chapter 1 comprises background information on consultant engagement by SMEs followed by an overview of New Zealand's corporate environment as an ideal setting for this investigation. The concept of IS consulting is defined; the objectives of this research are introduced and discussed, and the research strategy employed in this investigation is introduced. The chapter concludes with an outline of the format of this thesis.

Chapter 1 includes the following sections:

1.2 Background to study

The IT industry has witnessed an increase in the use of off-the-shelf software by SMEs and with it a demand for specialised software solutions catering to the specific needs of the smaller enterprise. Software manufacturers have responded to this demand by providing software in the areas of accounting information systems (AIS) and enterprise resource planning systems (ERPs) (Adam and O'Doherty, 2003). Support services, like consulting, have also emerged, specialising in the implementation and configuration of the popular off-the-shelf software solutions (Basil et al., 1997).

Since SMEs lack the skills to carryout the implementation of information systems (IS) in-house they are dependent on external support. Consequently, the use of consultants by SMEs is crucial for the success of IS projects (Thong, 2001). SMEs are generally characterised as having poor resources, particularly a lack of internal information technology skills (Thong 2001). This explains why consultants are important in assisting SMEs in selecting and implementing appropriate hardware and software solutions.

Several questions arise from the above. Given SMEs' dependence on consultants how can they ensure successful consultant engagement (Gable, 1991)? How satisfied are SMEs with the services of consultants and how effective are consultants in meeting the needs of their clients? Since the operations of SMEs are often affected by a dearth of resources and a poor knowledge base, what impact do consultants have on these organisations? In what ways do organisations change as a result of direct engagement with IS consultants? These questions provide the bedrock of this research.

In 2010, the IT design, IT consulting and development services in New Zealand were estimated to be worth over NZ$1 billion with these sectors experiencing yearly growth in their numbers (Statistics New Zealand, 2010). Today, many organisations regardless of size use consultants and other external experts to assist with the implementation of information systems and technology in their businesses (Gable, 2006). An organisation's reason for engaging a consultant may vary from the need to obtain specific knowledge and expertise to having the consultant compensate for a lack of capability (Nevo, Wade and Cook, 2007). As technologies, such as the Internet and e-Commerce continue to grow, interest has turned to understanding the use of consultants to implement or support e-commerce (Scupola, 2008 and Eikebrokk et al., 2007). However, few studies to date has examined the effect or impact of consultants on SMEs

In order to explore these issues and provide a meaningful answer to the questions raised above, this research will attempt to gain an in-depth understanding of the processes surrounding the implementation of IS, in New Zealand's SMEs, when a consultant is engaged by an organisation.

Before proceeding, it is important to clarify some of the terms being used in this dissertation. IS implementation refers to the process where a software system or solution is sourced, installed and configured within an organisation. Implementation is the step following the decision by an organisation to adopt a particular software or system. However, it is noted that the decision to adopt a particular software system is likely to be closely related to the implementation. IS implementation in this study focuses on short-term projects where external IT specialists (consultants) provide services for the purpose of implementing IS solutions at the contracting SME. Large scale outsourcing projects, long-term (multi-year) service agreements, and on-demand technical services are excluded (Nevo, Wade, and Cook, 2007). IS success refers to the extent to which a given information system actually contributes to achieving organisational goals, that is, its effect on organisational performance (Thong, Yap and Raman, 1994, 1997 and de Guinea, Kelly and Hunter, 2005). In small business this will more likely be in terms of saving time, formalisation and restricting of work processes (Thong, Yap and Raman, 1997). Factors influencing IS success refers to those factors that need to be present during implementation in order for the process to complete successfully.

1.3 The New Zealand Context

New Zealand is known as "*a country of small businesses*" as the majority of commercial enterprises in New Zealand are defined as small. New Zealand is therefore ideally suited for research involving SMEs.

The Ministry of Economic Development (MED) in New Zealand defines small businesses as enterprises with 19 or fewer employees. Medium-sized enterprises fall

into two categories: *medium 1*, 20–29 employees and *medium 2*, 30–49 employees. As of February 2010, the total number of enterprises in New Zealand was 470,350 with 97% per cent of these enterprises either non-employing or had fewer than 20 employees.

Table 1.1 shows the number of businesses in New Zealand for the years 2001 and 2006 based on the number of employees (Statistics New Zealand, 2008).

Number of employees	**Number of businesses**		**Total employees**	
	2001	**2006**	**2001**	**2006**
0	169,966	219,964	0	0
1 to 5	66,669	80,607	156,150	189,810
6 to 9	14,775	18,015	106,740	130,040
10 to 19	11,980	15,090	160,300	202,350
20 to 49	6,937	8,172	208,440	241,160
50 to 99	1,982	2,309	134,760	158,830
100 +	1,652	1,934	706,620	843,250
Total	**273,961**	**346,091**	**1,473,010**	**1,765,440**

Table 1.1: Business Categories in New Zealand (Statistics New Zealand, 2008)

1.3.1 Information and Communication Technology (ICT) in New Zealand

The overwhelmingly large percentage of SMEs in New Zealand makes it conceivable that these organisations demand information and communication technology services. Figures released by Statistics New Zealand show that during the financial year 2006, 93% of businesses used computers and 91% of businesses used the Internet. In 2007 the total sales of information and communication technology goods and services rose by 3.3% to $18, 228 million. The sale of computer services increased by 12% and constituted 20.9% of ICT sales in 2007 (Statistic New Zealand, 2007).

In 2006, computer consultancy services increased to 1,050 enterprises accounting for 50% (Figure 1.1) of the total population of enterprises with ICT sales (2,088) (Statistics New Zealand, 2007). Most businesses in New Zealand used a combination of ICT services and contractors. 56% of businesses received ICT support through contractors, and 9% of businesses reported they received no ICT support (Figure 1.2). Warranty service, which accounted for 32% was the next most common support type followed by in-house support by other staff (19%), and in-house support by ICT staff (12%), (Statistics New Zealand, 2008) (Figure 1.3). The 2010 figures reveal that computer services and software increased eight per cent from 2008, with sales of $4,528 million (Statistics New Zealand, 2010).

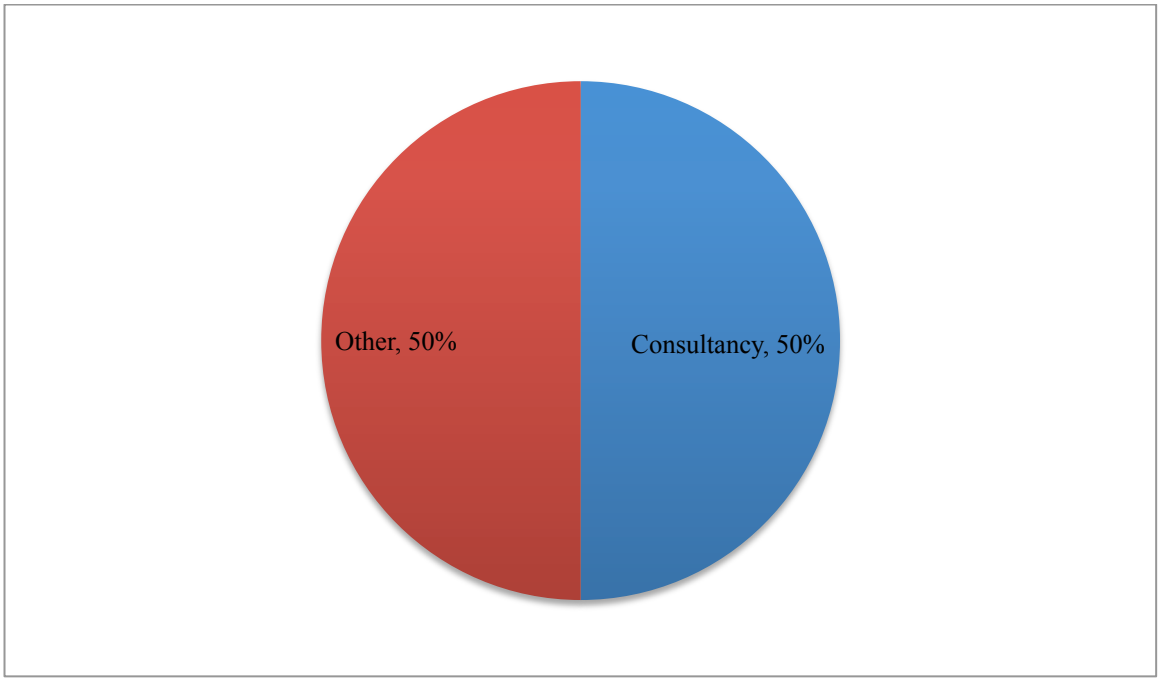

Figure 1.1: Percentage of enterprises with ICT sales 2006

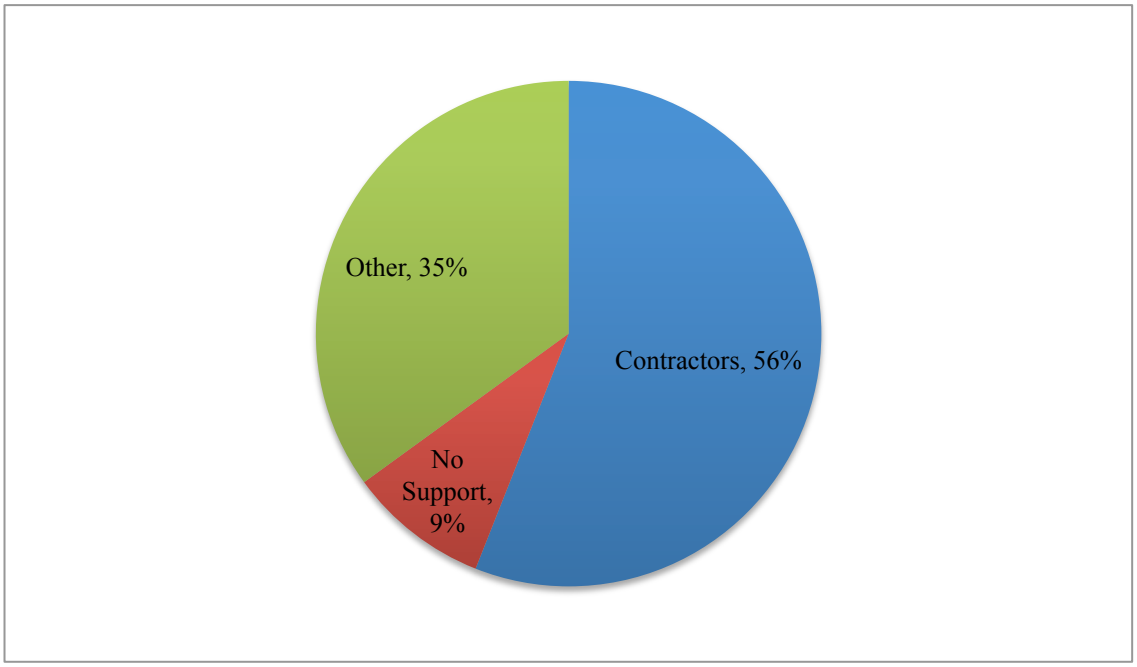

Figure 1.2: Percentage of firms using ICT support

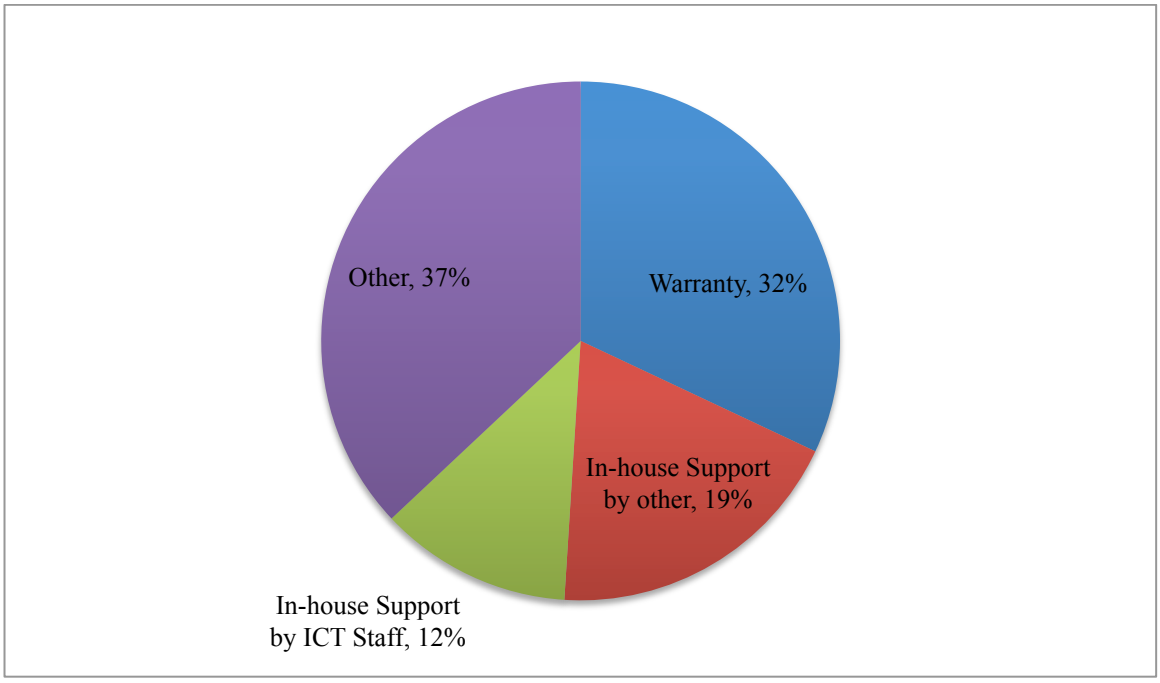

Figure 1.3: ICT support types by percentage 2006

1.4 IS Consulting

The growth and development of the IS consulting industry is linked to the growth and development of information technology. IS consulting is used by organisations to re-

engineer their businesses through a combination of technology, strategy, people, and business processes (Basil et al., 1997). To provide the best solutions, IS consultants have to quickly learn and constantly adapt to new technologies at a speedy pace. During implementation, consultants collaborate with client managers and employees to ensure results and prepare employees to support changes.

The IT consulting industry began its development throughout the decade of the 1970s. Consultants began to make an impact on information technology during this period. There was an increase in demand for information technology, which created a new market for specialist consultants in information technology (Basil et al., 1997). Organisations requiring specialised help from outside sources to maintain their competitive advantage were forced to adapt to emerging technologies which required the assistance of consultants in training and the selection of an appropriate system. As IT evolved there was an increase in the complexity of IS and its management. Consultants were engaged by companies to manage and cope with the increased complexity of IS (Basil et al., 1997).

Client-server and distributed databases were the hallmark of the 1980s. These technologies heralded an increase in demand for consultants. The 1990s saw the establishment of a variety of IS consulting firms. Companies benefited from the competition among the consulting companies who were forced to quickly learn and obtain knowledgeable of the newly developed state-of-the-art technologies. Today, consulting firms come in a variety of sizes and specialties. There are '*mega-consultants'*, such as Deloitte, that offer financial and business services, as well as technical advice. There are mid-size companies and local firms, called independent consultants, comprising one or two persons. There are software and hardware companies such as

Oracle and Microsoft who offer consulting services that assist organisations in implementing technologies (see Basil et al., 1997).

In New Zealand there is evidence of various types or categories of consultants (Table 1.2). These include what are termed Vendor-consultants, Independent Consultants, Independent Reseller-consultants and Mega consulting firms. Mega consulting firms are those like Deloitte (Basil et al., 1997). Vendor-consultants are vendor organisations that combine consultancy services with the provision of hardware and software solutions. Independent consultants may be as small as one or two persons or larger. These organisations provide consultancy services without any affiliation to the vendor of the solution. For example, these companies would not retail software solutions to clients. Independent-reseller consultants are similar to independent consultants, but they sell software solutions to clients while remaining independent of software vendors.

Type/Categories of Consultants		**Description**
Basil et al. 1997	**New Zealand**	
Mega Consultants	Mega Consultants	Large companies that provide a variety of consulting services e.g. Deloitte
Independent Consultants	Independent Consultants	May be small or large companies that provide consultancy services but are not affiliated with any particular software vendor
Vendors	Vendor-Consultants	Companies that provide consultancy services to support their software solutions
-	Independent-reseller Consultants	May be small or large companies that provide consultancy services and sell software solutions but are not affiliated with any particular software vendor

Table 1.2: Types/Categories of consultants

The affordability of off-the-shelf packages has made a wide selection of IS solutions accessible to SMEs. In some cases off-the-shelf packages may not suit the needs of the organisations and may also be complex to implement and configure. In this situation, SMEs turn to consultants for assistance. Many independent and independent-reseller consultants operate in this segment of the market and specialise in a variety of software and hardware solutions that are specifically marketed at SMEs.

In general, consultants provide a variety of services depending on the reason(s) why they are engaged by an organisation. For IS implementation projects consultants usually carry out all or some of the following tasks: analysis and recommendations; installation; configuration; integration; and training. Although firms may seek the assistance of IS consultants for other reasons, (i.e., advice), consultants are generally engaged to help implement IS solutions. IS implementation projects therefore provide the ideal opportunity for consultants to influence SMEs. Implementation projects are also perfectly suited for investigating the impact of consultant on SMEs.

1.5 Research Objectives

The aim of this study was to understand the ways in which SMEs are affected by direct contact/interaction with IS consultants and to describe the impact IS consultants have on SMEs.

This investigation sheds light on how IS consultants and SMEs engage and interact during projects designed to implement IS in the organisation and, on the role played by

IS consultants, including the task and duties that they perform and how these tasks and duties affect SMEs.

This research is important for a number of reasons. Firstly, it extends existing research by explaining ways in which IS consultants can be of benefit/value to SMEs. This study examined the ways in which consultants add value to SMEs. Secondly, this research is key in '*opening up*' new areas of research that are relevant to the role of IS consultants. This study explored how the role played by consultants affects SMEs.

Thirdly, this research raises questions about the relationship between IS consultants and SMEs. The traditional relationship is one of consultant-client where consultants simply provide advice or a specific service. Given the dependent nature of SMEs on external support does a new type of relationship exist between consultants and SMEs?

Fourthly, this research has implications for owners/managers and employees of SMEs as well as IS consultants. This research will help owners/managers to understand how IS consultants can add value to their organisations. Employees and managers are likely to gain an understanding of how their relationship with consultants can benefit individuals as well as the company. On the other hand, consultants will gain an understanding of how their actions impact SMEs and employees. This study will help consultants to be more aware of how they can influence SMEs through the implementation of IS.

1.6 Research Strategy

Given the broad nature of the main objective of this study, this investigation starts with an exploration of the issue of consultant engagement and IS implementation. As important themes emerge, this study attempts to describe and confirm the findings. Consequently, this study involves several phases of data collection and analysis. Figure 1.4 represents the approach used and shows how it relates to the development of each chapter of this document.

The steps involved in this study are outlined below:

1. The first step involved a review of existing literature (presented in Chapter 2). This review examined small business research and the nature of SMEs; IS implementation in SMEs; IT/IS consultants and the various theories used by researchers.

2. Based on what was learned from the review, the second step involved developing more specific or detailed objectives. It also involved embarking on the first phase of data collection, which was exploratory in nature involving interviews with SMEs and IS consultants, and was designed to discover emerging themes and relationships that were further investigated in later phases of data collection (presented in Chapter 4).

3. The third step was to investigate the emerging themes discovered in the first phase of data collection by interviewing several IS consultants to learn more about the themes. This was then and followed by interviews with SMEs to further investigate the themes in the context of implementing firms (presented in

Chapter 6). The key findings related to the impact of consultants were the focus of this phase of data collection and was both exploratory and descriptive.

4. The final step is to confirm the findings discovered in the earlier phases of data collection. This was achieved by conducting a longitudinal single-case study of an implementation project by an SME (presented in Chapter 8). This final phase of data collection was confirmatory in nature. Based on the results of this phase final conclusions are made about the impact that IS consultants have on SMEs.

The unit of analysis of the study was the individual (Consultant) and the organisation (SMEs). Face-to-face interviews were the main method used to generate data. These interviews were conducted with consultants who work with SMEs to implement IS. Interviews were also conducted with SMEs; case studies of organisations that implement IS with assistance from consultants.

A pilot study involving one SME was used to help refine the interview protocol used for the first phase of data collection. In the first phase, interviews were conducted with four SMEs and with three consultants. In the second phase of data collection, an additional five consultants were interviewed and further interviews were also conducted at three additional representative SMEs. The final data collection phase consists of an in-depth longitudinal study of a firm implementing an information system with the assistance of a consultant.

Knowledge-based Theory (KBT) and Resource-based Theory (RBT) were used throughout the study to analyse the data. KBT and RBT were used primarily for two reasons, firstly the nature of SMEs as lacking knowledge pointed to KBT as a way to

analyse and interpret the data with respect to knowledge in the organisation. And the nature of SMEs as lacking resources pointed to RBT as a way to analyse and interpret the data with regards to resources in the organisation. Secondly, using KBT and RBT allowed a holistic view of the IS implementation process with respect to SMEs.

KBT was used to understand and describe IS knowledge in the organisation focusing on the creation of knowledge assets. RBT was used to understand and explore the concept of IS competencies or business abilities relating to IS. A snapshot of any organisation should reveal the existence of knowledge relating to IS, and business abilities related to IS; both of which change dynamically as the organisation over the lifetime of the business. Therefore using KBT and RBT in this research provided a balanced view of SMEs.

The data collected in the first phase was transcribed and then analysed using Nvivo. For the second and final phases of data collection, data were also recorded, and transcribed and analysed using the open-source software TAMSAnalyzer for Macintosh computers.

1.7 Structure of Thesis

A summary of each of the chapters in this thesis follows. Figure 1.5 presents a flowchart summarising the document:

Chapter 1: Introduces the area of interest of the study. The background to the problem area is discussed and the context for the study highlighted. The question guiding this endeavour is posed along with the high-level objectives of the research.

Chapter 2: Reviews areas of relevant prior research. This chapter argues that the findings and conclusions about consultants and their impact on SMEs are under-developed and lack widespread agreement. It is contended that further research into the relationship between IS consultants and SMEs is needed, including the impact that consultants have on SMEs.

Chapter 3: Follows the conclusions of chapter two. This chapter presents the main research question and specific objectives of the study. The methodology underpinning the study is discussed; a pragmatic approach is suggested as the under-pinning methodology of this study. The methods used to generate data in order to answer the research question and objectives of this study are also described. It is argued that the case method is most appropriate for this study.

Chapter 4: Presents the results of the interviews conducted in the first phase of data collection of the study. The pilot study is presented in this chapter including what was learned from this study. The SME cases and consultant cases involved in this phase of data collection are described.

Chapter 5: Analyses the results of the first phase of data collection. This chapter presents the results of this phase of data collection in light of the impact consultants have on SMEs. The emergent themes are presented and a high-level model depicting the impact of IS consultants on SMEs is presented. This model suggest that IS knowledge and IS competencies are key themes and the key areas influenced by consultants.

Chapter 6: Presents the results of the interviews conducted in the second phase of data collection of this study. The consultant cases involved in this phase of data

collection are described followed by a description of the SME cases. This chapter presents and describes the investigation to explore the emergent themes presented at the end of Chapter five.

Chapter 7: Analyses the results of the second phase of data collection. This chapter argues that consultants have an impact on IS knowledge assets and IS competencies in SMEs. This chapter further argues that the effect of consultants is the creation/transfer of IS knowledge assets and the compensation/enhancement of IS competencies.

Chapter 8: Describes and analyses the results of the final phase of data collection. This chapter presents the results of the attempt to confirm or verify the findings presented at the end of Chapter seven. This chapter argues that consultants influence IS knowledge assets in SMEs by creating/transferring knowledge to SMEs. It explores consultants' influence on SMEs by compensating/enhancing IS competencies in SMEs.

Chapter 9: Discusses the findings of this study and concludes that consultants are an essential part of the knowledge creation processes in SMEs. It concludes that Consultants compensate/enhance IS competencies for SMEs. This chapter discusses the limitations and implications this study has for future research and the implications for managers/owners of SMEs as well as consultants.

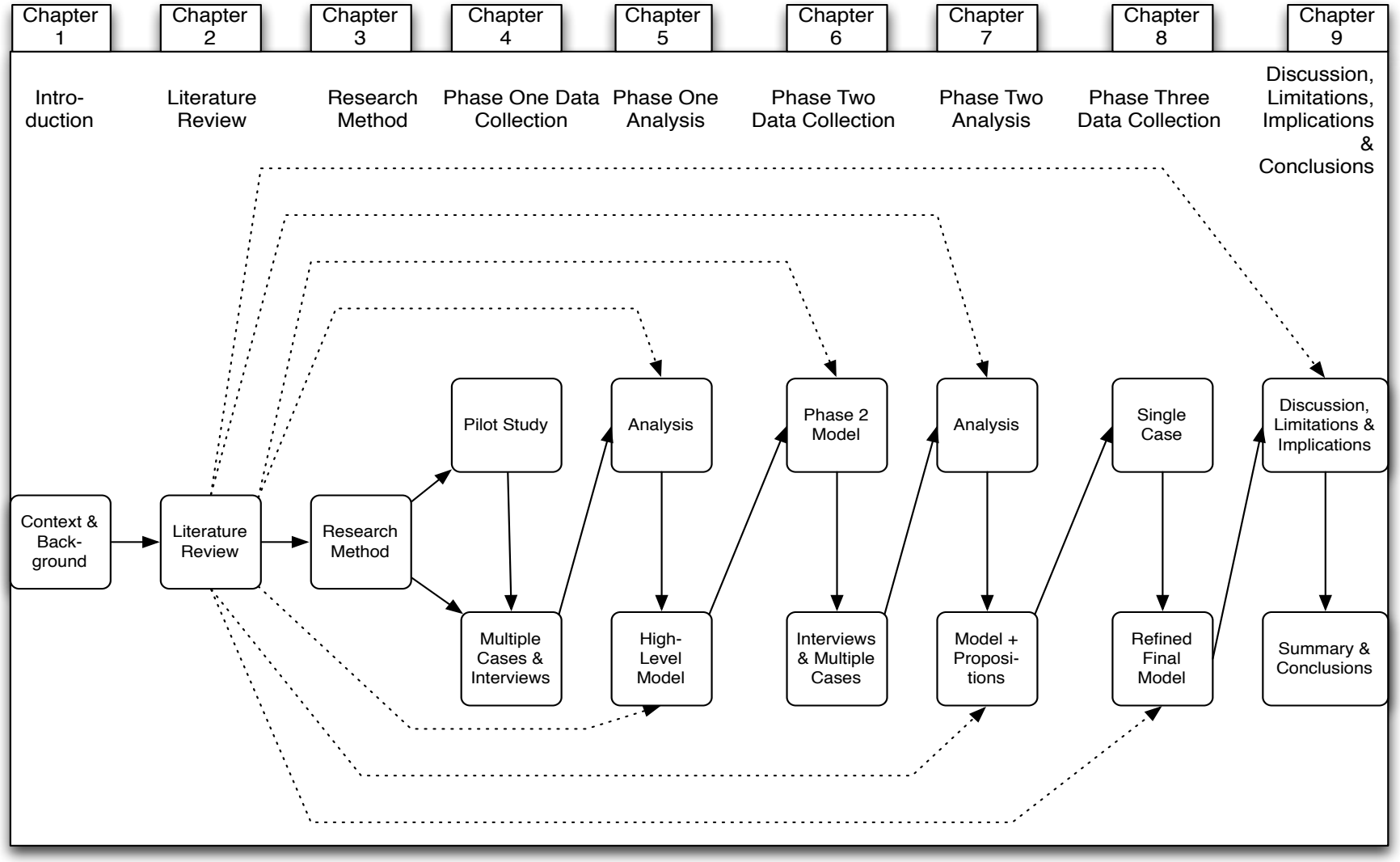

Figure 1.4: Approach and layout of thesis

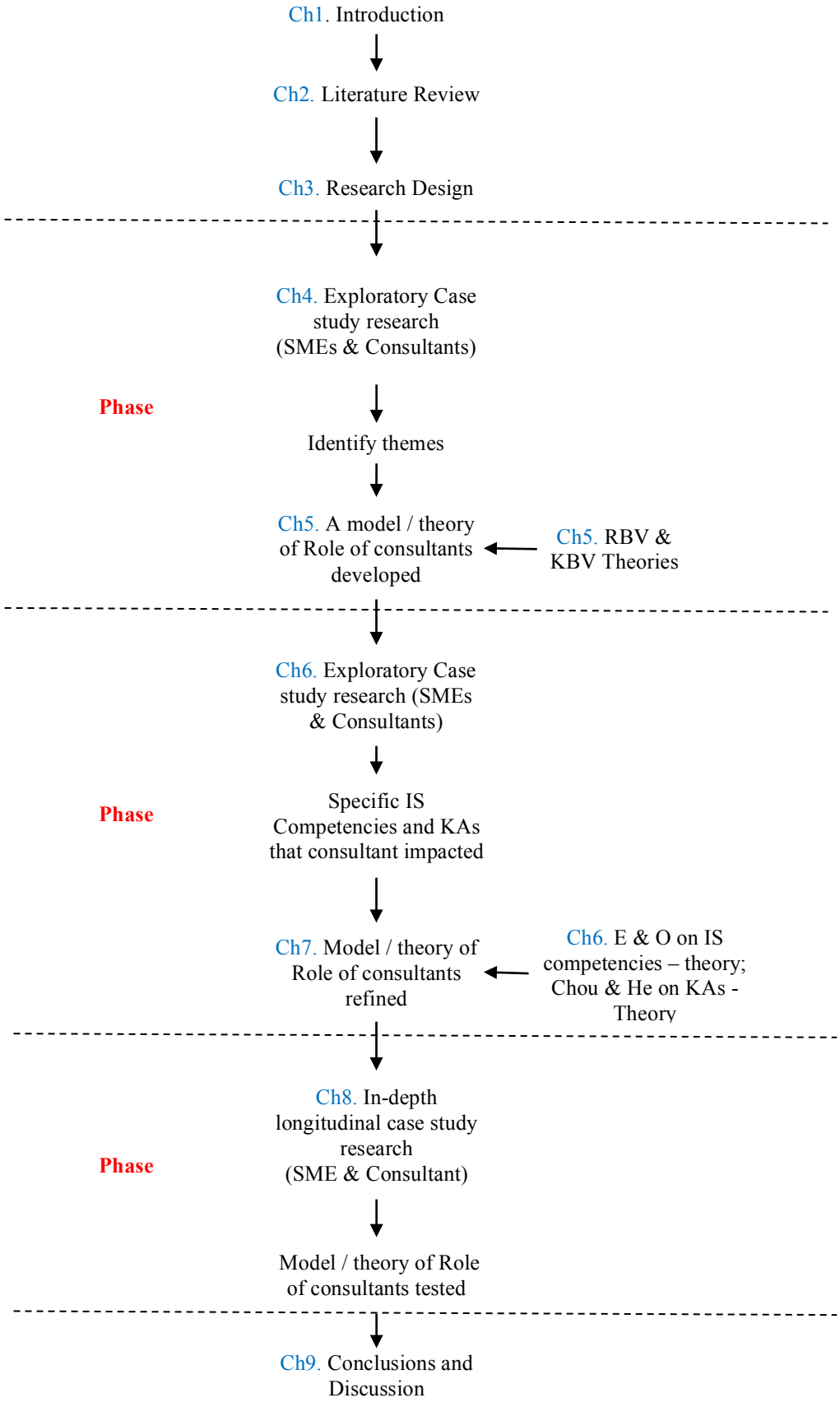

Figure 1.5: Flowchart of thesis

2 LITERATURE REVIEW

2.1 Introduction

This chapter reviews existing literature to build the foundation for this study. First, the peculiarities of SMEs and the difficulties of SME research are explored. It is concluded that the nature of SMEs and their definition are important and need to be clearly defined at the outset of the research process. Next, the literature on IS implementation in SMEs is discussed. Drawing on the findings of this research, it is noted that the use of consultants for the successful implementation of IS in SMEs is important. Building on this important finding about consultants the literature on IT/IS consultants, specifically related to SMEs, is examined.

It is concluded from the review that the findings and subsequent conclusions regarding consultants and their impact on SMEs varies and lacks widespread agreement. It is argued that further research into the relationship between IS consultants and SMEs is needed. It is felt that by providing a better explanation of the role played by consultants, and their impact on SMEs, there will be synergy across research findings enhancing the understanding of the dynamics of the IS consultant-SME phenomenon. Finally, taking into consideration the nature of SMEs, it is argued that theories of the firm are ideally suited for examining phenomena related to SMEs (for example IS implementation). Therefore, applying theories of the firm to study the consultant-SME phenomenon should, it is felt, give a deeper and richer understanding of how consultants impact SMEs.

This chapter concludes by suggesting that there is a need to examine the impact that engaging IS consultants has on SMEs and secondly to explore the role consultants play during the IS implementation process. This is study attempts to address this.

Chapter 2 includes the following sections:

2.2 Small and Medium-sized Enterprises

This section takes a closer look at the '*nature*' of SMEs, the difficulties faced in researching these organisations and the implications this has for information systems (IS) research.

The first step is to formulate a working definition of small and medium-sized enterprises (SMEs). To date there is no established or widely accepted definition of the small firm. Curran and Blackburn (2001) note that the definition of a small business may be based on the number of employees, on the organisation's financial turnover or be qualitative. Qualitative criteria used to differentiate between small and large organisations are based on the unique nature of small business. For example, small firms are usually seen as price-takers and are vulnerable because of limited customer base, lacking resources and generally unable to withstand external influences (Curran

and Blackburn, 2001). They are also known to be highly adaptive to changing in the business environment (Ramsey, Martin and Ibbotsen, 2009).

The most common definition of SMEs used by researchers is based on the number of employees. This approach offers several advantages and most significantly, is easiest for research purposes. However, using the number of employees as a measure presents some difficulties. The numbers of employees used in their definitions; differ from country, institution and agency. For example, in New Zealand, small businesses are defined by government as having fewer than nineteen (19) employees and medium-sized organisations as having greater then nineteen (19) but less than fifty (50) employees (Statistics New Zealand, 2010). The Small Business Research Centre at Massey University in New Zealand defines three categories. Micro enterprise: five (5) or fewer employees; Small firm: six to forty-nine (6 − 49) employees; Medium firm: fifty to ninety-nine (50 − 99) employees (New Zealand Centre for SME Research, 2010). Oliver and English in the book "The Small Business Book: A new Zealand Guide for the 21st Century" suggest the following definitions of small businesses: fifty (50) employees in manufacturing, ten (10) employees in services and twenty-five (25) employees in other sectors (Oliver and English, 2007).

Information systems researchers (see Burgess, 2002; Duxbury et al., 2002; Hunter et al., 2002) also use the number of employees as a definition for SMEs. M Gordan Hunter (Hunter, 2004 and Hunter, 2005) suggests that a researcher should define what constitutes a small business for the purposes of his/her research. The various definitions based on number of employees make it difficult when making comparisons across studies. For example, if one researcher defines SMEs as fewer than fifty (50) employees and another defines SMEs as fewer than one hundred (100) employees, how

comparable are their findings (See Table 2.1). In other words does the size of the organisation matter? Are these two organisations similar enough for the results to be applicable in both cases? Following the suggestion of Hunter (2004) and the categories used by Statistics New Zealand, SMEs for the purposes of this research are defined as having fewer than fifty (50) employees.

Author(s)	Country	Micro	Small	Medium	SME
Holmes and Nicholls (1989)	Australia		1 - 19		
Burgess (2002)	Australia	1 - 5	1 - 20		
Cragg and King (1993)	New Zealand		1 - 50		
Igbaria et al. (1998)	New Zealand		20 - 100		
Chau (1995)	Hong Kong		1 - 49		
Ismail and King (2007)	Malaysia				20 - 150
Thong (1999)	Singapore		1 - 99		
Duan et al. (2002)	UK				10 - 249
Wynn (2008)	European Countries				1 - 249
Duxbury et al. (2002)	Canada	2 - 9	10 - 99	100 - 500	
Hunter et al. (2002)	Canada			1 - 100	
El Louadi (1998)	Canada			1 - 300	
Qureshil et al. (2009)	USA	1 - 9			1 - 499
Bharati and Chaudhury (2006)	USA	1 - 10	11 - 100	101 - 500	1 - 500

Table 2.1 Employee sizes used in defining micro, small, medium enterprises by a sample of IT researchers

In addition to the issue of size, is the nature of SMEs. SMEs have their own peculiar nature; they are not simply smaller versions of large businesses (Welsh and White, 1981 and Curran and Blackburn, 2002). The peculiar nature of SMEs must be taken into consideration when conducting research. SMEs are known to have simple and highly centralised structures (Duxbury et al. 2002), are flexible (Burgess, 2002; Hunter, 2005; Murphy and Ledwith, 2007), lack resources (Welsh and White, 1981; Curran and Blackburn, 2001; Duxbury et al. 2002) and lack trained, skilled personnel (Duxbury et

al., 2002; Hunter et al., 2002; Faggiani 2005). SMEs, in addition to being highly adaptive, also quickly take advantage of new opportunities and are flexible enough to change when the economic climate changes (Ramsey et al, 2009). Additionally, SMEs are known to suffer from financial constraints affecting their growth and are prone to adopt short-range management perspectives (Curran and Blackburn, 2001).

In general, from an IS perspective, SMEs suffer from a lack of IT/IS knowledge, skills and IT/IS resources; Thong (2001), Druxbury et al. (2002) and Hunter (2005) underscore this point. SMEs are therefore dependent on external experts for the implementation of IS (Thong, 2001). The terms knowledge and resources point to theories of the firm as an ideal way to view SMEs. More on this will be discussed later in the chapter.

The following section examines IS implementation in relation to SMEs. A dominant theme in IS research is the success of IS. This discussed as well as the factors that influence its success, primarily external expertise in the form of consultants.

2.3 The Implementation of IS by SMEs

Academics and practitioners have long recognised the important impact of external experts, like consultants, in order for SMEs to successfully implement IT (see for example Soh et al., 1992). As far back as the 1990s into the 2000s researchers discovered that *'consultant effectiveness'* was a significant predictor in determining the success of IS in small businesses (Thong et al. 1994, 1997 and de Guinea et al. 2005). Despite this discovery, research has gone little in the way of understanding the impact or the effect external experts or consultants have on SMEs. This could be deemed

surprising given that it has been established that SMEs suffer from a lack of resources/resource-poverty (Welsh and white, 1981) and a lack of IS knowledge (Thong, 2001).

About 20 years ago researchers started to look at the implementation of IS in SMEs. Viewing IS implementation as a project early studies (Thong et al., 1994, 1997; Thong 2001; de Guinea et al., 2005) focussed on determining IS success and identifying the factors that lead to IS success. IS success was the main criterion used to evaluate implementation projects. Referring to the then popular Delone and McLean (1992) model of information systems success researchers attempted to operationalise IS success in SMEs (see Table 2.1 below for a list of authors).

User satisfaction	**Organisational Impact**	**System Usage**	**Application Impact**
Soh, Yap and Raman (1992)	Soh, Yap and Raman (1992)	Soh, Yap and Raman (1992)	Thong, Yap and Raman (1994)
Thong, Yap and Raman (1994)	Thong, Yap and Raman (1994)	Thong, Yap and Raman (1994)	
Thong, Yap and Raman (1997)	Thong, Yap and Raman (1997)	Bruque and Moyano (2007)	
Thong (2001)	Thong (2001)		
de Guinea, Kelley and Hunter (2005)	de Guinea, Kelley and Hunter (2005)		

Table 2.2: Measures of IS success and corresponding authors

This early research relied on four measures to operationalise IS success in SMEs: user satisfaction, organisational impact; system usage; and application impact (see Figure 2.1). User satisfaction and organisational impact were the most commonly used by researchers focussing on SMEs.

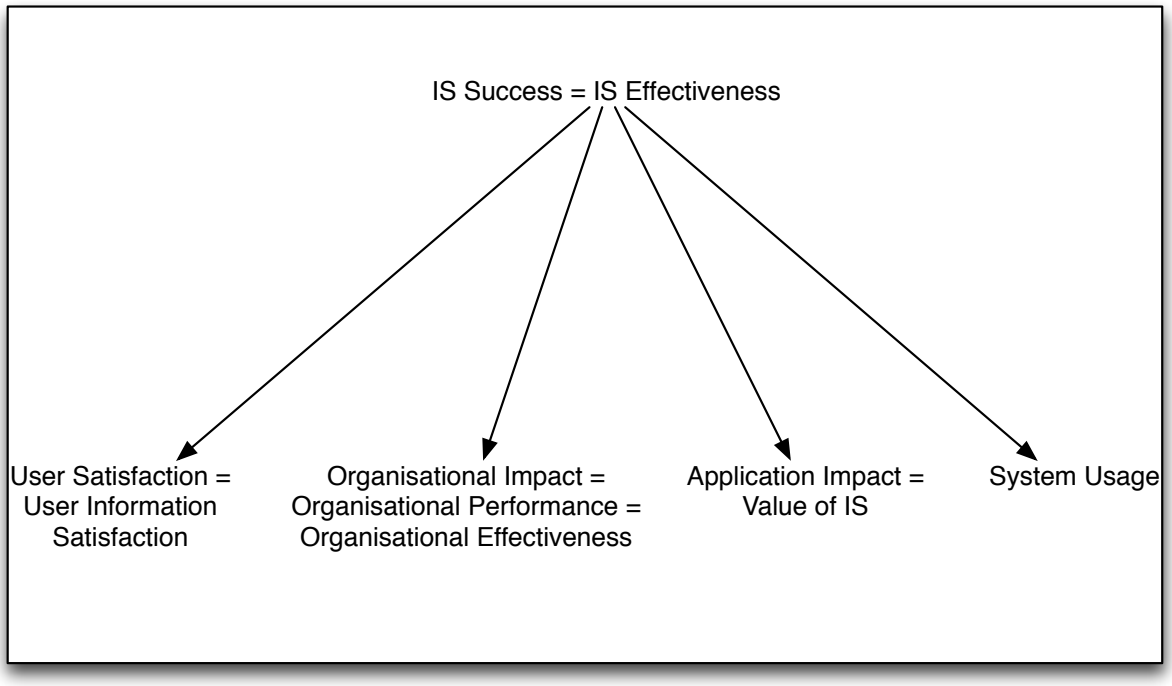

Figure 2.1: Measures of IS success from past research

As stated previously, the other focus of early research was determining the factors that led to IS success in SMEs. The research consistently found that external expertise was a significant determinant of IS success along with top management support. External expertise consisted of vendor support and consultant effectiveness. Figure 2.2 shows the key determinant factors from prior research and highlights the focus of this current study. Thong et al. (1994, 1997), Thong (2001) and more recently de Guinea et al. (2005) found that vendor support was significant in determining IS success in SMEs. Thong et al. (1994, 1997) and Thong (2001) also found that consultant effectiveness was a significant determining factor of IS success.

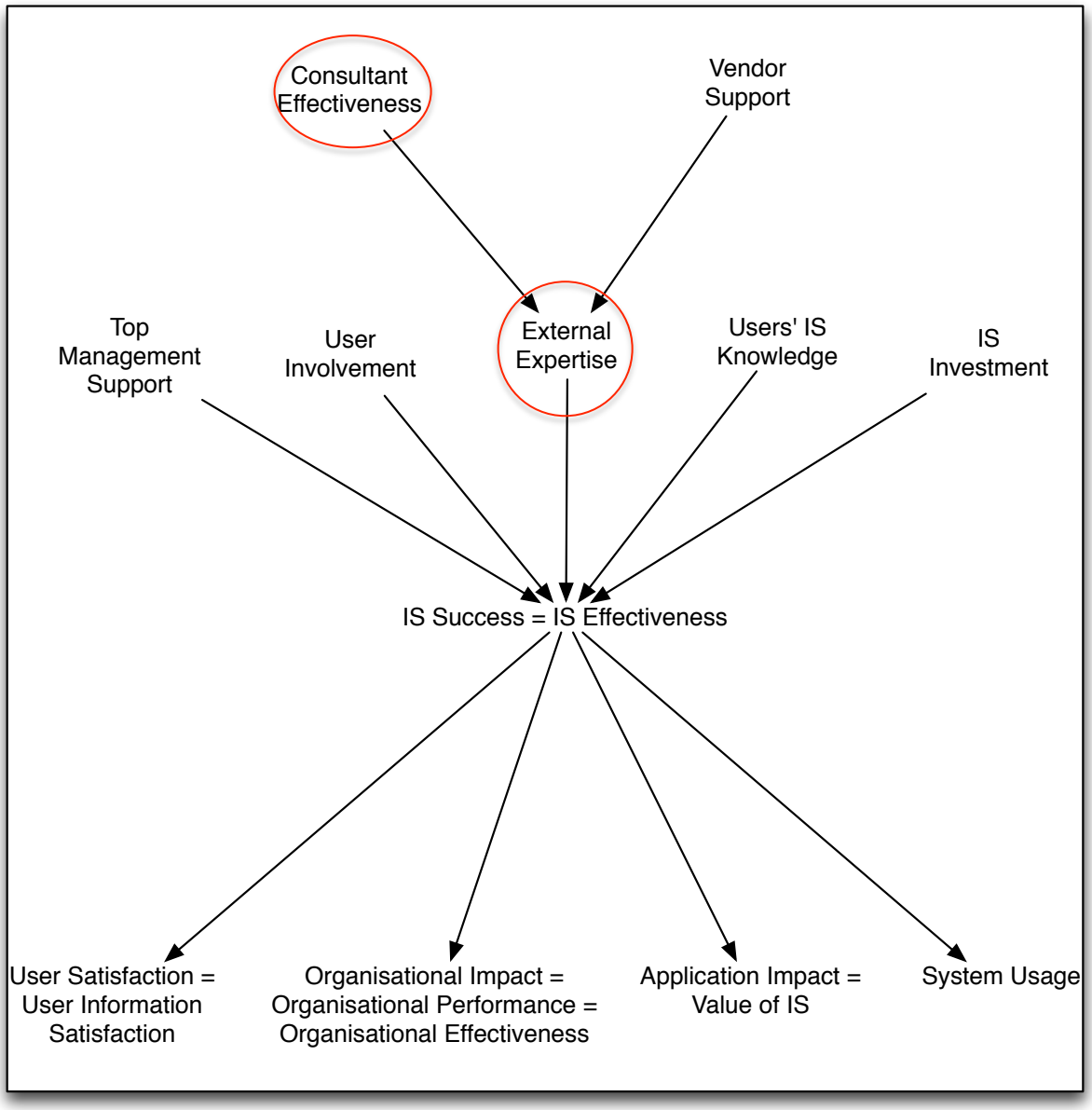

Figure 2.2: IS success factors and measures

Vendor support was assessed in early research according to the following attributes:

(1) Adequacy of technical support during IS implementation

(2) Adequacy of technical support after IS implementation

(3) Quality of technical support

(4) Adequacy of training provided

(5) Quality of training provided

(6) Relationship with other parties in the IS implementation project.

Consultant effectiveness is an assessment of the consultant's performance in various areas of IS implementation:

(1) Consultant effectiveness in performing information requirements analysis

(2) Consultant effectiveness in recommending a suitable computerisation solution

(3) Consultant effectiveness in managing the implementation

(4) Relationship between consultant and other parties in the project.

Considering the early research presented in Table 2.3 below, it is concluded that the effect of external expertise on SMEs has primarily been studied in fours ways:

(i). The relationship between engaging consultants and computerisation success.

(ii). The relationship between engaging separate consultants + vendors and IS effectiveness.

(iii). The relationship between engaging vendors that provide consultancy services and IS effectiveness.

(iv). The relationship between external expertise and IS effectiveness.

It was shown that when effective consultants were engaged on IS implementation projects it resulted in successful IS. This highlights the importance of IS consultants in the IS implementation process. It is noted that although external expertise consisted of consultants and vendors, this study focuses on consultants since many consultants are now software resellers and/or agents of vendor organisations. In addition, many vendor organisations provide consultancy services and/or partner with consultants to provide consultancy services. It is also noted that despite highlighting the importance of external experts, particularly consultants, for IS success this early literature does not reveal any information on the impact that consultants have on SMEs. In the following section examines research related to IS consultants.

Year	Author(s)	Research Question	Key Findings
1992	Soh, Yap and Raman	What is the difference in the level of computerisation success between two groups of small businesses: those with consultants and those without?	The level of computerisation systems usage with consultants is higher than without consultants. The computer systems implemented with consultants provide more up-to date computer reports and information than those without consultants. Small businesses that engage a consultant are less likely to complete their computerisation project on time and within budget. Computerisation success is positively related with the capability, experience and effectiveness of the consultant.
1994	Thong, Yap and Raman	What is the difference in IS effectiveness of small businesses that engage separate consultants and vendors and those that engage vendors that also provide consultancy services?	The vendor-only approach results in more effective IS than the consultant-vendor approach. The Vendor-only approach results in the same level of consultant effectiveness and a better level of vendor support than the consultant-vendor approach. The relationship between vendor and other parties in the IS implementation project is an important predictor of IS effectiveness.
1997	Thong, Yap and Raman	What is the most effective IS implementation environment? 1. Low external expertise and low top management support 2. High external expertise and low top management support 3. Low external expertise and high top management support 4. High external expertise and high top management support	The most effective IS implementation occurs in the environment where both top management support and external expertise are high. IS implementation can still be effective if top management support is low but the quality of external IS expertise is high.
2001	James Thong	What is the relative importance of the factors that influence IS implementation success in small businesses?	Small businesses with successful IS have: (a) highly effective external experts; (b) adequate IS investment; (c) high users' IS knowledge; (d) high user involvement; (e) high CEO support. External expertise is the key predominant factor of IS implementation success.
2005	Ana Ortiz de Guinea, Helen Kelley and Gordon Hunter	What is the importance of managerial support and external expertise for IS effectiveness in Canadian small businesses?	Managerial and vendor support are both essential for IS effectiveness. Consultant effectiveness is not essential for IS effectiveness.

Table 2.3: IS implementation and the effect of external support from past research

2.4 Consultants

Who or what is a consultant? Kirby and Jones (1997) define a technical consultant as:

> *"An individual or organisation whose primary activity is the provision of technical advice, assistance and analysis to solve a problem relating to technology or technological system of the customer organisation." (p. 158)*

IS consultants are a subset of technical consultants. Borrowing from this definition and making the necessary adjustments, IS consultants in this study are defined as individuals or organisations whose primary activity is the provision of IS advice, assistance and analysis to solve a problem relating to the information system of the customer organisation. From this definition a consultant in this study is any individual or organisation contracted to assist SMEs with the implementation of IS.

While early IS researchers examined consultants and their relevance to IS success, other researchers focussed on understanding the role that consultants played in enterprises (Champion, Kiel and McLendon, 1990, Bessant and Rush, 1995 and Basil, Yen and Tang, 1997). Although much of this research is related to large organisations, it is still worthwhile to consider the findings relating to large firms when studying SMEs. This is because as stated there is much more research on IS and consultants in large firms and therefore there are more theme to explore that may also be applicable to SMEs.

Bessant and Rush (1995) noted that large firms were more knowledgeable in making effective use of consultants but the same was not true of small firms. Prior to the Bessant and Rush (1995) study Gable (1991) had noted that client involvement was frequently lacking due to the misconceptions of small businesses regarding their role in the consultant engagement process. The author further pointed out that small businesses

often overestimated the impact of consultant and vendor support in achieving successful computer system selection and implementation. Whether these statements still hold 20 years on may be debateable; nonetheless, these statements do highlight the differences between large firms and SMEs when considering the impact of consultants.

Around the same time Gable (1996) was also investigating how to measure consultant engagement success in SMEs. He suggested three key areas:

1. The recommendations of the consultant. That is, the client's acceptance of the consultant's recommendations and the client's satisfaction with the consultant's recommendations.
2. Client learning (the client's understanding of the solution). This involves improvement in the clients' understanding of the problem and solution and the clients' satisfaction with the improvement in their level of understanding.
3. The performance of the consultant throughout the project. This involves the consultant's performance in terms of reasonable fees charged and a reasonable time to complete the project. It also involves the client's satisfaction with the consultant's performance.

More recently it has been suggested that the research on consultants is diverse with many inconsistencies among the findings. Nevo et al. (2007) underscore this point in noting the lack of consistency in research findings was unfortunate given the increasing use of IT consultants to develop and manage IT projects. Recently, researchers have examined client satisfaction with IT consultants and vendor services with particular interest in the client's perceptions of satisfaction (Yoon and Suh, 2004). IT consultants have received mixed reviews with clients being dissatisfied with the high cost of projects, low quality of service and lack of knowledge transfer (Nevo et al., 2007).

Nevo et al. (2007) also noted that prior research focused on best practices related to the use of consultants and the responsibilities of consultants. However, there is a lack of agreement in the literature about the responsibilities of IT consultants (Nevo et al., 2007). Despite the mixed results of previous research, Nevo et al. (2007) found that firms realised tangible benefits from using external IT consultants. However, the authors noted that the level of existing internal IT capabilities of the organisation moderated the benefits of using IT consultants. It was determined that consultants also have an effect on conflict resolution and communication effectiveness in the ERP consulting process (Wang and Chen, 2006). It was found that competent consultants facilitated both communication and conflict resolution in addition to improving ERP system quality (Wang and Chen, 2006).

The factors influencing the success of using consultants is another area that has been examined by prior research. It was found that the success of IT consultants is affected by the commitment of the client to the project and depends on the skills of the consultants, on the collaboration between the client and the consultant and on the level of information sharing between the client and consultant (see Nevo et al., 2007). In addition, factors such as mutual trust, communication, availability of in-house dedicated staff and contract management have been listed as necessary for consultant outsourcing projects to be successful (see Nevo et al., 2007). Other factors or issues cited in the literature include consultants' understanding of their clients' business goals and the appointment of a liaison person between the client and consultant (Willcocks et al., 2004; Nevo et al., 2007).

Swanson (2010) notes that when firms innovate with IT they usually engage consultants. In light of this, the researcher discussed how consultants facilitated the innovation

process within and across firms. The study concluded that consultants served to increase both the rate and extent of diffusion of an IT innovation and that they provided important know-how for replicable implementation. Additionally, in their traditional engagements, consultancies added little to the assimilation of an IT innovation within and across firms except where on-going business services are provided (Swanson, 2010).

In terms of SMEs Howcroft and Light (2008) examined the role of consultants as intermediaries in the process of selecting packaged software. Using a longitudinal qualitative study the authors examined the adoption of a customer relationship management package by an organisation. They concluded that the consultant through the process of what they called "*salesmanship*" did not take into account the needs of the users but focussed instead on the interest of senior management to secure the procurement of the software package (Howcroft and Light, 2008).

In another study, Carey (2008) examined the relationship between web developers and small business owners. The study explored four sets of small business owner/web developer relationships detailing how they paired together and what they expected of each other. The author found that the negotiation and clarification of roles and responsibilities were essential parts of the relationship between owner and web site developer. However, the study noted that in all of the cases, achieving an adequate level of client involvement in the website design and development process was challenging.

Given the diverse nature of IS/IT consultant research, three key questions were asked of the past literature. What impact do consultants have on engaging organisations, specifically SMEs? What are the reasons why organisations (specifically SMEs) engage IT/IS consultants? What is the role of IT/IS consultants? Posing these questions, it is

believed, narrows the focus and converges the findings of existing literature on consultant-client encounters.

What impact do consultants have on firms, specifically SMEs?

Early research conducted on large firms suggests that consultants have an impact on the technological abilities of their clients. It was determined that consultants were a catalyst for shared learning and problem solving in organisations (Bessant and Rush, 1995). More recently, consultants are known to also impact firms by allowing them to contract for new capabilities and form long-term relationships with a preferred consultant (Swanson, 2010). SME research suggests that consultants have an impact on their clients' understanding of the capabilities of a technology and its potential impact on business (Carey, 2008). Consultants are seen as capable of adding benefits to businesses that engage them.

Why do organisations engage IT/IS consultants?

Drawing on previous research, six reasons are advanced that suggest why organisations may engage consultants.

(1) Firms may engage consultants if they lack sufficient in-house knowledge and expertise or are faced with time or budget constraints (Nevo et al., 2007).

(2) Firms may engage consultants as an alternative to hard to find IT staff. Nevo et al. (2007) suggest that in tight labour markets firms might prefer to hire consultants as an alternative to full time IT staff.

(3) Firms may engage consultants for non-routine tasks such as software and Web application development, project management, or benchmarking (Nevo et al., (2007).

(4) Firms engage consultants for knowledge transfer, using the expertise of IT consultants to transfer knowledge to internal IT staff (Nevo et al., 2007) and to gain technical know-how (Willcocks et al., 2004).

(5) Firms may face difficulties developing custom software or may find packaged software more appealing. This is especially true for SMEs (Howcroft and Light, 2008).

(6) Firms may hire consultants to compensate for the lack of managerial capability, which represents one of the main barriers to technology transfer especially in smaller and less experienced firms. Consultants act as intermediaries to assist and advise firms, effectively compensating for a lack of capability (Bessant and Rush, 1995).

What is the role of IT/IS consultants?

Early research has defined the role of the consultant primarily as an intermediary (Bessant and Rush, 1995). In this role consultants assist and advise firms often compensating for the firm's lack of capabilities. Bessant and Rush (1995) highlight two main roles of consultants: 1) consultants as '*marriage brokers*' positions them as a single point of contact where the client can access a wide range of specialist services. Traditionally, the consultant transfers specialised expert knowledge to clients by engaging in experience sharing, either implicitly or explicitly. 2) The consultant as a diagnostician where he helps the client to articulate and define their needs.

Early research has also presented other roles played by the consultant. Champion et al. (1990) and Basil et al. (1997) delineated the following nine consulting roles:

- ***Hands-on expert***: The consultant undertakes the task on behalf of the client and is expected to produce good results. The relationship is such that the client will need the consultant on a continual basis now and in the future.
- ***Modeller***: The consultant is not only responsible for positive results in the current project, but should also be responsible for answering questions about what they are doing and why. The implication is that in the future clients may be able to carry out the task on their own.
- ***The partner role***: This role implies a shared responsibility for results and growth. It assumes that both the consultant and the client have the capacity to successfully perform all common aspects of the task and that both will share responsibility for the results.
- ***The coach role***: The consultant does not have direct responsibility for performing the task. Instead, they observe the performance of the task, provide feedback, and give advice and support during the actual job performance. Although the consultant is not directly involved in carrying out the task, they are highly involved with the client's growth.
- ***Teacher or trainer role***: Unlike the coach role, a teacher or trainer is not concerned with specific performance alone but the overall performance in general.
- ***The technical role***: This is a 'back-up' role. The consultant has moderate responsibility for results and is not generally concerned with the growth of client capacity. The client only uses the adviser's expertise to solve specific problems.
- ***The counsellor role***: Instead of performing the task, the consultant tries to help the client clarify and set goals, maintain positive motivation, and develop and implement effective plans. In other words, the counsellor's job is to help the client to gather, analyse, and develop conclusions from his/her experience.

- ***The facilitator role***: As a facilitator, a consultant has a low stake in the task at hand and is neutral within the client group. The facilitator provides 'process-oriented' activities such as agenda building and providing techniques for planning.
- ***Reflective observer***: A reflective observer is least responsible for results and capacity building. The consultant's task is limited to feeding back observations and impressions.

In recent years consultants have been seen primarily as intermediaries in the innovation process (Swanson, 2010). The researcher identified five "*consulting niches*" as follows:

- ***Business strategy***: The focus of the consultant is on the formulation of strategy. Consultants assist firms by (i) exposing the firm to new pursuits and technologies; (ii) positioning the firm within its industry; (iii) providing the basic rationale for innovation; (iv) preparing the firm for change.
- ***Technology assessment***: The focus of the consultant is on understanding new IT and its adoption. Consultants assist firms by (i) facilitating the understanding of new IT and its reception in markets; (ii) providing customised IT research and benchmarking services; (iii) facilitating identification and evaluation of alternative IT providers.
- ***Business process improvement***: The focus of the consultant is on understanding new IT and its implementation. The consultant assists the firm by (i) offering expertise and tools for modelling and evaluating business processes; (ii) enabling specification of proposed new business processes and IT; (iii) providing business models for change and justifying adoption of new IT; (iv) supporting choice of implementation approach.

- ***Systems integration:*** The focus of the consultant is on understanding new IT and its implementation. The consultant assists the firm by (i) providing know-how for specification and implementation of IT solutions; (ii) assisting in choice of IT providers; (iii) providing for integration with other systems; (iv) supporting change management.
- ***Business support services:*** The focus of the consultant is on understanding new IT and its implementation as well as assimilation. The consultant assists the firm by (i) providing for on-going business partnership; (ii) enabling client to contract in part for its new capabilities; (iii) allowing client to leverage longer-term relationship with a preferred consultancy

In SMEs the role of the consultant is intermediary. The consultant is a bridging intermediary who disseminates knowledge (Carey, 2008). The consultant also acts as a '*conduit'* by standing between IT suppliers and SMEs (Howcroft and Light, 2008). In these intermediary roles the consultant carries out several activities and services. Howcroft and Light (2008) point out that consultants provide services such as advice to assist with finding appropriate products, the implementation and customisation of the products, training and support services and the integration of software with existing systems. In the bridging role consultants carry out activities such as: transferring specialised knowledge; sharing ideas and experiences; acting as a point of contact for a wide range of specialised services; and assisting clients to clearly specify their particular needs (Carey, 2008). Table 2.4 summarises the role(s) of consultants by grouping similar or related roles together to form groups and Table 2.5 summarises the services that consultants provide to SMEs.

Roles	Literature	Large Firms	Small Firms
Bridging or 'Marriage Broker'	Carey (2008) Bessant and Rush (1995)	x	x
Knowledge Transfer	Thong et al. (1994) de Guinea et al. (2005) Carey (2008)		x
Experience Sharing	Carey (2008)		x
Teacher or trainer role	Champion et al. (1990) and Basil et al. (1997)	x	
Systems integration	Swanson (2010)	x	
Modeller	Champion et al. (1990) and Basil et al. (1997)	x	
The coach role	Champion et al. (1990) and Basil et al. (1997)	x	
Conduit	Howcroft and Light (2008)		x
Hands-on expert	Champion et al. (1990) and Basil et al. (1997)	x	
Technology assessment	Swanson (2010)	x	
		x	
Partner	Champion et al. (1990) and Basil et al. (1997)		
Business support services	Swanson (2010)	x	
Diagnostician	Bessant and Rush (1995)	x	
Business strategy	Swanson (2010)	x	
The counsellor role	Champion et al. (1990) and Basil et al. (1997)	x	
The facilitator role	Champion et al. (1990) and Basil et al. (1997)	x	
Business process improvement	Swanson (2010)	x	
Reflective observer	Champion et al. (1990) and Basil et al. (1997)	x	

Table 2.4: Roles played by IS consultant

Consultant services	**Literature:**				
Information requirement analysis	Gable (1991)	Soh et al., (1992)	Thong el al., (1994)	Thong (2001)	de Guinea et al., (2005)
Recommending suitable computer hardware and software	Thong el al., (1994)	Thong el al., (1997)	Thong (2001)	Howcroft and Light (2008)	
Managing the implementation of the IS	Thong el al., (1994)	Thong el al., (1997)	Thong (2001)	Howcroft and Light (2008)	
Computerisation planning	Soh et al., (1992)				
Project Management	Soh et al., (1992)				
Application package selection	Soh et al., (1992)				
System integration	Howcroft and Light (2008)				
Develop and Support System	Thong el al., (1994)	Thong (2001)	Howcroft and Light (2008)		
Customisation	Howcroft and Light (2008)				
Training	Thong el al., (1994)	Thong (2001)	Howcroft and Light (2008)		

Table 2.5: Services that IS consultants provide to SMEs

Summarising what has been presented so far indicates that in large firms prior research has looked at client satisfaction with the services of consultants (Nevo et al., 2007). The research has examined best practices surrounding the use of consultants (see Nevo et al., 2007) and the responsibilities/role of consultants have been examined (Champion et al., 1990; Basil et al., 1997; Nevo et al., 2007). The research has also examined the effect of consultants on communication effectiveness and conflict resolution in the ERP consulting process, (Wang and Chen, 2006) and has explored the intermediary role of consultants in innovative technology transfers (Bessant and Rush, 1995).

The research presented has looked at the responsibilities/role of consultants in SMEs (Howcroft and Light, 2008). The research has examined the relationship between owners of SMEs and web developers (Carey, 2008) and has looked at the issues and best practice surrounding consultant engagement (Gable, 1991, 1996). The research has examined the use of consultants for the implementation of e-business solutions (Bode and Burns, 2002). See Table 2.6 below for a summary of consultant research.

Large Firms	SMEs
Client satisfaction with the services of consultants	Relationship between SME owners and web developers
Best practices surrounding the use of consultants	Issues and best practice surrounding consultant engagement
The responsibilities/role of consultants	The responsibilities/role of consultants
The effect of consultants on communication effectiveness and conflict resolution in the ERP consulting process	The use of consultants for the implementation of e-business solutions
The intermediary role of consultants in innovative technology transfers	

Table 2.6: Summary of consultant research

Considering the research presented so far it is noted that the diverse nature of consultant research makes it difficult for the researcher to find agreement and consistency across

studies. Studies, like Carey (2008) present the positive influence of consultants while others present a somewhat opposing view, for example, Howcroft and Light (2008). There is a need for synergy across findings if the outcomes of such research are to be of value in practice for owners/managers of SMEs.

Prior research suggests that consultants impact their clients' understanding of the capabilities of a technology and its potential impact on business (Carey, 2008). However, research on the impact of consultants on SMEs is underdeveloped. The research does not go far enough; it does not identify the specific areas affected nor does it explain how the areas are affected:

i. *What capabilities in SMEs are impacted by IS consultants?*
ii. *How do IS consultants impact or affect capabilities in SMEs?*

As noted, the role of consultants has also been described as intermediary (Howcroft and Light, 2008; Carey, 2008). As intermediaries, consultants transfer specialised knowledge and share ideas and experiences with SMEs (Carey, 2008). However, research does not go far enough; it does not suggest what type of specialised knowledge is transferred nor does it suggest how this knowledge is transferred:

iii. *What type of knowledge does IS consultants transfer to SMES*
iv. *How is knowledge transferred from IS consultants to SMEs*

Therefore, it is concluded that the findings and subsequent conclusions regarding consultants and their impact on SMEs need further development. Research is needed to examine the interplay between IS consultants and SMEs. A deeper understanding of how the role played by consultants influences SMEs, especially the transfer of

specialised knowledge and capabilities, will create synergy across research findings and open up ways of understanding the dynamics of the IS consultant-SME phenomenon.

It is also noted that the questions presented previously mention specialised knowledge and capabilities. This is interesting as it indicates that as suspected and mentioned earlier, Knowledge-based Theory (KBT) and Resource-based Theory (RBT) may be useful for understanding the impact of consultants on SMEs. KBT and RBT are examined and discussed in the following section.

2.5 Theories of the firm

It is noted that there is limited or little use of theories of the firm to study IS implementation and the engagement of consultants. This is observed when considering the prior research presented earlier. Much of the research on IS implementation and consultant engagement focus on IS success and engagement success although there has been use of resource-based theory in studying IS implementation. It is now argued that theories of the firm are particularly suited for examining SMEs and the effect of consultants. The reason that theories of the firm are well suited to studying this particular phenomenon is due mainly to the nature of SMEs. As Nonaka and Toyama (2005) point out the wider purpose of any theory of the firm is to describe the nature of the organisation.

Since SMEs are described as resource poor (Welsh and White, 1981), this suggests that resource-based theory or the resource-based view (RBV) of the organisation would be a useful lens through which to study SMEs and IS implementation. SMEs are also known to lack IS knowledge and IS skills (Attewell, 1991). This suggests that the knowledge-

base view (KBV) of the firm and knowledge creation theory would also be appropriate lenses through which to study SMEs and the implementation process.

In the following sections resource-based view (Barney, 1996), knowledge-based view (Spender, 1996; Grant, 1996 and Nonaka and Toyama, 2005) and organisational knowledge creation theory (Nonaka, 1994; Nonaka and Takeuchi, 1995; Nonaka et al. 2006) are explored. It is argued that these various theories may be used together to explain, describe and build propositions regarding IS implementation and the engagement of IS consultants by SMEs.

2.5.1 Resource-based Theory

The firm was originally described as a set or bundle of resources by Penrose (1959) who suggested that growth of the firm is determined by management's search for the best usage of available resources. Barney (1996) built on this perspective stating that a firm's resources include assets, capabilities, processes, attributes, knowledge and know-how possessed by a firm, that can be used to create and implement competitive strategies. Some resources enable the firm to achieve competitive advantage and other resources lead to superior long-term performance. Therefore, firms compete on the basis of resources that are valuable, rare, inimitable and non-substitutable (Barney, 1996).

Rivard et al. (2006) explained that the resource-based view relies on two fundamental assertions, that resources and capabilities possessed by firms may differ, and that these differences may be long lasting. If a resource possessed by a firm is not heterogeneous, that is, it is also possessed by several of the firm's competitors; this resource cannot contribute to competitive advantage. Further, if a resource is immobile competitors

would face cost disadvantages in obtaining, developing, and using it compared to the firm that already possesses it (Rivard et al., 2006).

Resources are stocks of available factors owned by a firm; therefore resources that are valuable and rare provide the firm with a temporary advantage. The advantage can be maintained as long as the firm is able to protect against the resource being imitated, transferred or substituted (Wade and Hulland, 2004 and Griffy-Brown and Chun, 2007). Although a firm may possess many resources only a few of these may lead to or have the potential to lead to sustained competitive advantage. Wade and Hullard, (2004) suggest it may be useful then to make the distinction between resources that help the firm to attain a competitive advantage and those that help the firm to sustain the advantage. Resources can be assets, capabilities, processes, attributes, knowledge and know-how that a firm possesses and uses to create and employ competitive strategies (Rivard et al., 2006).

From an IS perspective it has been suggested that resources which support the effective application of IT rather than the technology are best suited to sustaining a competitive advantage. Doherty and Terry (2009) suggest that organisations should focus on the potential of the resources or the capabilities needed to support and exploit IS within the firm. It has also been posited that when it comes to IT resources, it is easy for competitors to duplicate investments in IT resources by purchasing the same hardware and software. The IT resources themselves do not provide sustained competitive advantage but rather the manner in which firms leverage their IT investments to create unique capabilities (Santhanam and Hartono, 2003). IS resources may be divided into two categories, IS assets (technology) and IS capabilities (system-based). IS assets are the easiest resources to copy and are fragile sources of competitive advantage. On the

other hand IS capabilities are seen as a source of a firm's competitive advantage (Wade and Hullard, 2004).

Resource-based theory (RBT) has been applied to organisations to show the relationship between IS resources and firm performance. Researchers looking into this area have focussed on the relationships between IT resources and business performance (Bharadwaj, 2000 and Santhanam and Hartono, 2003). RBT has been used to study the contribution of IT to business value (Wade and Hulland, 2004 and Melville, Kraemer and Gurbaxani, 2004). Wade and Hulland (2004) identified eight IS resources, which they grouped into three main categories:

- Outside-in resources - external relationship management and market responsiveness. These are externally directed and are concerned with the establishment of relationships with business partners, and understanding competitors.
- Inside-out resources - IS infrastructure, IS technical skills, IS development, and cost effective IS operations. These are used from inside the firm to respond to market requirements.
- Spanning resources - IS business partnerships and IS planning and change management. These involve both internal and external analysis capabilities.

Resource-based theory (RBT) has also been used to study the interplay between internal and external IT capabilities. Nevo et al. (2007) studied the tension between internal and external IT capabilities and the realisation of enhanced IT productivity. The study showed that organisations received tangible benefits from using external IT consultants, but the level of existing internal IT capabilities moderate the benefits (Nevo et al., 2007). The theory has also been used to show that an organisation's ability to leverage and

sustain improvements in its competitive positioning are directly dependent upon its ability to effectively apply an appropriate portfolio of IS capabilities (Doherty and Terry, 2009). The researchers concluded that the successful outcome of an IS initiative is dependent upon '*outside-in*' and '*spanning'* capabilities (Doherty and Terry, 2009).

Outside-in capabilities encompass external relationship management and represents the firm's ability to manage linkages between the IS function and stakeholders outside the firm. An example of this is the firm's ability to work with suppliers to develop appropriate systems and infrastructure requirements for the firm (Wade and Hullard, 2004). In SMEs, consultants are likely to perform this function. Spanning capabilities refer to IS alignment, particularly with business strategy. It also refers to the organisations ability to anticipate future changes and growth, to choose platforms (including hardware, network, and software standards) that can accommodate change and to effectively manage the resulting technology change and growth (Wade and Hullard, 2004). It is also likely that SMEs will require the assistance of consultants to execute these capabilities.

2.5.1.1 Resource Based Theory and SMEs

Resource-based theory (RBT) has been used to examine IS as firm resources and the role of IS resources in knowledge-based SMEs (Duhan et al., 2001). Taking into consideration the nature of SMEs, to suffer from resource constraints and knowledge barriers, Thong (2001) developed a resource-based model of IS implementation in small businesses. It was shown that small businesses with successful IS had highly effective external experts, adequate IS investment, high users' IS knowledge, high user involvement, and high CEO support. External expertise was found to be a predominant key factor of IS implementation success in small businesses.

RBT has also been used to study the adoption of IS by SMEs. Caldiera and Ward (2003) used RBT to show management perspectives and attitudes towards IS/IT adoption and use; and to show that the development of internal IS/IT competencies likely determined different levels of success in IS/IT adoption and use. The researchers noted that it was these determinant factors which "*under-pin*" the explanation of why some firms were more successful at IS/IT adoption and use. One key factor, the researchers noted, was the existence of IT/IS knowledge in the firm or in a closely associated specialist IS/IT enterprise, like consultants (Caldiera and Ward, 2003). This suggests that for SMEs consultants play a vital role by supplying IS/IT knowledge. Caldiera and Ward (2003) noted that,

> *"The personal relationships between CEO/top managers and the IS/IT managers, or the IS/IT suppliers, seemed to explain why those firms were more successful in adopting and using IS/IT. The IS/IT manager or the IS/IT supplier must have top managers'/owners' trust (essentially CEO's trust)." (p. 136)*

Dibben and Heinl (2009) found that the IS outsourcing decision of SMEs was influenced by the resource constraints of the firm. The researchers contended that SMEs did not put much emphasis on strategic considerations when deciding on IS issues such as outsourcing. They further argued that SMEs outsourced application services, system operations, or help desk functions because the lack of resources coupled with the help of external suppliers outweighed the danger of depending on the IS service provider (Dibbern and Heinzl, 2009). Dutta, Gwebu and Wang (2011) stated that a firm's internal IT capabilities influenced the outsourcing decision of the firm. These authors posited that strong internal IT capabilities was a defining factor for outsourcing firms,

although small firms in their sample had low IT capabilities compared to larger firms. The study concluded that regardless of the size of the firm, the outsourcing of the firm's IT capabilities were associated with more effective selection and alignment of information technology outsourcing strategies (Dutta et al., 2011).

Butler and Murphy (2008) took the use of RBT to another level by using it to understand how small to medium software enterprises (SMSEs) build and apply business and IS capabilities. The findings indicated that managing external relationships was a core business and IS capability, whatever the period of an SMSE's evolution. From a RBT perspective external relationships relate to 'outside-in' capabilities (Wade and Hulland, 2004). It is argued that consultants are likely to play a key role in external relationships as SMSEs engage the services of consultants to gain benefits from their capabilities.

RBT has further been used to investigate the competencies needed at managerial and individual levels for successful adoption and assimilation of business-to-business e-services in SMEs. Scupola (2008) investigated such competencies and discovered three important competencies at the managerial level; there are as follows:

- ***Vision*** - this involves understanding how the system could add value to the company and contribute to the company's business strategy (see also Eikebrokk and Olsen, 2007).
- ***Value*** - this involves finding out what value the system could bring to the company, in terms of decreases in operational expenses, if it is to be adopted.
- ***Control*** - this involves ways/initiatives to encourage and enforce assimilation of the system by the users (individual level).

Scupola (2008) also suggested three competencies that are key at the individual level (related to the use of the system):

- ***Technical skills*** - focus on gaining/having tacit and explicit knowledge needed to use the system (see also Nonaka, 1994 and Chou and He, 2004). Explicit knowledge is gained through formal training seminars about the system and tacit knowledge is gained through use of the system.
- ***Interpersonal skills*** - focus on communication and empathy (see Chou and He, 2004). Communication is the capability to communicate with others and empathy is the capability to understand and take into consideration the needs and wants of other colleagues.
- ***Conceptual skills*** – focus on creativity and judgement. Creativity is defined as the ability to search for new information (see Chou and He, 2004), to use and understand other sources, the ability to navigate and relate to the IT system, to understand when the information and the knowledge at hand is not enough, and the capability to handle multiple sources at the same time (Scupola 2008). Judgement refers to the capability to judge different kinds of situations and make a decision.

Overall the researcher notes that the technical ability and capacity of the whole corporation is important for the organisation to be able to initiate primary adoption (Scupola, 2008). Based on the finding of prior research, for example Butler and Murphy (2008), one may postulate that consultants could play a role in aiding technical ability and capacity necessary for primary adoption.

The RBV of the firm has additionally been used to investigate the relationship between e-business competencies and e-business success. Eikebrokk and Olsen (2007) studied

the relationship between e-business competencies and e-business success in European SMEs. The results of the study indicated that the following e-business competencies were important for e-business success:

- ***E-business strategy***: looks at the company's ability to envision the strategic potential of new e-business technology; to understand the concept of e-business and its new potential and to identify threats in the business domain. It also includes the ability to understand and use strategic planning methods to develop an e-business strategy, which describes how e-business will be put into action.
- ***IT-business process integration***: centres on the ability to integrate IT and business knowledge to devise new business processes.
- ***Systems and infrastructure***: focuses on knowledge of the data, network, and processing architectures that supported the enterprise applications and services.

Eikebrokk and Olsen (2007) contended that competencies in strategic planning and IT management were not significant predictors of e-business success.

It can be seen from the IS literature discussed thus far the RBV of the firm has been used in variety of ways and this is accompanied by a variety IS resources that firm may possess. In developing the framework of competencies used in the study Eikebrokk and Olsen (2007) incorporated competencies used in previous studies. This was one of the few attempts to consolidate the various IS resources (in the form of competencies) discussed in the wider body of literature. Cragg, Caldeira & Ward (2011) attempted to identify various IS competencies in SMEs; using evidence from empirical studies the authors developed a framework of IS competences in SMEs. The framework consist of twenty-two IS competences grouped into six macro competences. Each competence refers to a specific ability at the organisational level and include recognising business

opportunities, IS planning, accessing IS knowledge, defining requirements, software and hardware sourcing, applications development, and managing relationships with IS suppliers. This framework is also a consolidation of the IS resources suggested in prior research. Figure 2.7 summarises some of the key literature and highlighting the area researched and the IS resources considered by the studies.

Author(s)	Focus of Study	IT/IS Resources Considered
Bharadwaj (2000)	Relationship between IT resources and business performance	IT Infrastructure Human IT resources IT-enabled intangibles
Duhan et al. (2001)	Role of IS resources in knowledge-based SMEs	Project Management Housing Management Grants Research Skills Communication skills
Thong (2001)	Resource constraints and IS implementation	Time Finance Internal Expertise External Expertise
Caldiera and Ward (2003)	IS adoption by SMEs	Technical IS/IT skills Managerial IS/IT skills
Santhanam and Hartono (2003)	Relationship between IT resources and business performance	IT Infrastructure Human IT resources IT-enabled intangibles
Wade and Hulland (2004)	Contribution of IT to business value	Outside-in resources Inside-out resources Spanning resources
Melville, Kraemer and Gurbaxani (2004)	Contribution of IT to business value	Technological IT resources Human IT resources
Nevo et al. (2007)	Tension between internal and external IT capabilities	Firm-specific IT knowledge and expertise
Eikebrokk and Olsen (2007)	Competencies and e-business Success	Strategy and Vision Sourcing and Alignment IT Business process Integration
Butler and Murphy (2008)	How SMSEs build and apply business and IS capabilities	Outside-in resources Inside-out resources Spanning resources
Scupola (2008)	IS adoption	**Managerial**: Value competencies Vision competencies Control competencies **Individual**: Technical skills Interpersonal skills Conceptual skills
Doherty and Terry (2009)	Link between sustained competitive positioning and IS resources	Outside-in resources Inside-out resources Spanning resources
Dibben and Heinl (2009)	IT/IS outsourcing	Human resources and capabilities
Dutta et al., 2011	IT/IS outsourcing	Internal IT capability
Cragg et al. (2011)	IS competences in SMEs	Business and IS Strategic Thinking Define IS Contribution Define IS Strategy Exploitation Deliver Solutions Supply

Table 2.7: Summary of IS resources considered by prior research

It can be concluded that the RBV of the firm is an ideal way to examine issues related to small and medium-sized enterprises. As a theory of the firm, the wider purpose of the RBV should explain the nature of organisations (Nonaka and Toyama, 2005). The nature of SMEs is one of organisations suffering resource constraints (Thong, 2001) or lacking in resources (Curran and Blackburn, 2001). In the past, RBT has been used to understand the determinants of IS implementation success. Thong (2001) successfully used RBT to investigate IS implementation in small businesses. In the case of RBT, Caldiera and Ward (2003) posited that it provided possible explanations for the two determinant factors discovered in their study: management perspectives and attitudes towards IS/IT adoption and use and development of internal IS/IT competences. Butler and Murphy (2008) found that managing external relationships was a core IS capability. It was suggested by Carey (2008) that consultants have an impact on the capabilities found in SMEs. Therefore, the RBV of the firm provides an ideal way to view the interactions between consultants and SMEs and understand the impact that the former has on SMEs.

2.5.2 Knowledge-based Theory

The resource-based view of the firm shows the importance of knowledge, along with other resources, for competitive advantage (Nonaka and von Krogh, 2009). Knowledge has become an area of interest for researchers in many disciplines over the years. Knowledge-oriented terms such as *tacit knowledge*, *organisational competence*, and *capability* are viewed as resources (Nonaka, Toyama, and Hirata, 2008).

The knowledge-based view (KBV) of the firm may be traced back to the work of Winter (1987) and Kogut and Zander (1992). The knowledge-based view of the firm was developed as an extension of the resource-based view (RBV) and seeks to provide

an answer to the question: how is competitive advantage created, and how is it sustained (Spender, 1996; Grant, 1996; Nonaka, et al., 2006)? The focus of the KBV is therefore on knowledge and its '*special characteristics'*. A knowledge-based theory of the firm accounts for the empirical fact that profit is just one of a firm's several purposes.

The KBV asserts that firms differ because the organisational knowledge systems created by organisations differ (Nelson, 1991 and Nonaka et al., 2006). Many other explanations also exist that suggest why firms differ. Nonaka et al. (2006) provide a summary of the various explanations. The researchers note:

> *Rooted in neoclassical economics, the positioning school explains that firms differ due to their inability to move into profitable industries or industry segments because of high entry barriers and mobility barriers. In evolutionary economics, firms' differences are explained by managers' limited capacity to foresee and act on an uncertain future, and firms' path dependency. Transaction cost economics explains firm differences due to the difficulty of transacting certain types of goods and services. More recently, the resource-based view of the firm has explained firm differences by means of the cost of imitating or acquiring resources. Firms that seek to acquire resources that give other firms a competitive advantage are prevented from doing so because these resources are too costly, or impossible to acquire in the factor market. Together these theories explain firm differences as a result of the profit-maximising firm's lack of ability to imitate more profitable firms. Assuming that profit maximisation is a goal, differences among firms result from market imperfections that could be minimised by intensifying competition (Tirole,*

1988), unless blocked by barriers, high cost, or managers' limited capability. (p. 1192)

According to Nonaka et al. (2006) the concept of organisational knowledge and organisational knowledge creation theory provide alternatives to the above explanations. And, as noted by Carey (2008) IS consultants are known to transfer specialised knowledge to firm that make use of their services. Therefore it is possible that consultant engagement may relate to organisational knowledge and organisational knowledge creation theory.

2.5.2.1 Knowledge

Nonaka et al. (2006) in citing Varela et al. (1991) note that knowledge is embodied in individuals, and is therefore history dependent, context sensitive, specific and aimed at problem definition rather than problem depiction and problem solving. Framing knowledge in such a way takes it *"...A step away from the traditional epistemology,"* (Nonaka et al., 2006). Nonaka et al. (2006) define knowledge in three distinct ways:

(1) They posit that it is based on the traditional definition that knowledge is justified true belief. This means that individuals justify the truthfulness of their observations based on their observations of the world. Justification is dependent on unique viewpoints, personal sensibility and experience (Nonaka and Takeuchi 1995).

(2) Knowledge is the capacity to define a situation and act accordingly. Knowledge is positioned to define a situation so as to act on it rather than merely solving pre-given problems.

(3) Knowledge is explicit and tacit (Nonaka and Takehuchi, 1991). Nonaka et al. (2006) point out that knowledge that can be uttered, formulated in sentences, captured in drawings and writing, is explicit; knowledge tied to the senses,

movement skills, physical experiences, intuition or implicit rules of thumb, is tacit.

Knowledge is also defined as a justified belief that increases an entity's capacity for effective action (Alavi and Leidner, 2001). Knowledge may be viewed as a state of mind, an object, a process and a condition of having access to information or a capability (Alavi and Leidner, 2001). Knowledge when defined as a state of mind describes a state of knowing and knowing is a condition of understanding gained through experience or study; the sum of what has been perceived, discovered, or learned (Alavi and Leidner, 2001). This perspective on knowledge focuses on enabling individuals to expand their personal knowledge and apply it to the needs of the organisation.

In this study, knowledge is defined according to Nonaka et al. (2006). It is further noted that tacit knowledge is more challenging to transfer than explicit knowledge, and is best transferred through rich communication media such as observation rather than through more explicit media (Argote, McEvily and Reagans, 2003). Explicit knowledge is articulated, codified, and communicated in symbolic form and/or natural language. For example, the manual accompanying the purchase of computer software contains knowledge on use of the software. Therefore, knowledge can be tacit (un-codified) or explicit (codified) (Nonaka and Takeuchi, 1995). Codified knowledge can be transferred in formal systemic language. Un-codified knowledge is personal, difficult to communicate, rooted in action and experience and resides in the minds of people (Nonaka, 1994). The tacit and explicit dimensions of knowledge are described as follows: Tacit knowledge resides in action and experience. Tacit knowledge is context specific and composes of both cognitive and technical elements (Nonaka, 1994).

Ability is an important aspect of knowledge. Abilities are innate but can result from training (Argote et al., 2003). Experience affects ability therefore individuals and organisations are able to understand knowledge in areas where they have experience (Argote et al., 2003). The Experience of observing someone perform a task is more beneficial than other types of experiences such as classroom training. Individuals who learn through observation are able to transfer the knowledge to a new task even if they are not able to articulate what they have learned (Argote et al., 2003). Nonaka and Takehuchi (1991) noted that experience gained through observation provides an opportunity for an individual to acquire tacit knowledge. Nonaka (1994) pointed out that individuals primarily generate knowledge in organisations. The corporate vision and organisational culture provide the knowledge base from which to '*tap'* tacit knowledge, while technology taps explicit knowledge in the organisation (Nonaka and Takeuchi, 1995).

In summary, the knowledge-based perspective states that the services rendered by tangible resources depend on how they are combined and applied, which is a function of a firm's know-how (Alavi and lender, 2001). This knowledge is part of an organisation's culture, as well as its identity, routines, policies, systems, documents and individual employees. Knowledge-based resources are socially complex, difficult to imitate, and may therefore produce a long-term sustainable competitive advantage (Alavi and lender, 2001). Consultants, because of their ability to transfer knowledge (Carey, 2008), may contribute to the knowledge-based resources of a firm. And, by so doing aid the firm in producing sustainable competitive advantage.

The KBT contends that firms differ because organisational knowledge creation gives rise to unique organisational knowledge systems (Nonaka et al., 2006). Additionally, it is noted that the purpose of a theory of the firm must be to understand the nature of the firm. According to Nonaka et al. (2006) organisational knowledge creation theory provides the building blocks of the firm's knowledge.

2.5.3 Organisational Knowledge creation

Organisational knowledge creation theory describes how organisational knowledge created by individuals is made available and is increased as it is connected to the organisation's knowledge systems. In other words, what employees come to know benefits their colleagues and eventually, the larger organisation (Nonaka et al., 2006). Organisational knowledge creation theory is aimed at developing a comprehensive view of knowledge that can shed light on organisational creativity, learning, innovation and change (Nonaka and von Krogh, 2009).

The theory has been used to explain phenomena in many fields:

- Organisation theory (e.g. Osterloh and Frey, 2000).
- Organisation behaviour (e.g. Peterson, 1998).
- Human resource management and leadership (e.g. Ranft and Lord, 2000).
- Innovation and technology management (e.g. Nonaka et al., 1996).
- Strategic management (e.g. Choo and Bontis, 2002).
- Public administration (e.g. Pedersen and Larsen, 2001).
- Management information systems (Scott, 1998).

According Nonaka and Toyama (2005) organisational knowledge creation theory serves to shed new light on the nature of the firm and advances the concept of '*knowledge strategy*'. Nonaka et al. (2006) stated that,

> "*Knowledge creation can be understood as a continuous process through which one overcomes the individual boundaries and constraints imposed by information and past learning by acquiring a new context, a new view of the world and new knowledge." (p. 1182)*

The definition of knowledge adopted by this study notes that by interacting and sharing tacit and explicit knowledge with others, individuals enhance the capacity to define a situation or problem. They further apply their knowledge so as to act and specifically address the situation or solve the problem (Nonaka et al., 2006). The engagement of consultants to implement IS usually involves interactions between consultant and SMEs in such a way that there is likely be an exchange of tacit and explicit.

Nonaka and Takeuchi (1995) proposed a unified model of organisational knowledge creation and argued that knowledge was created through the interaction and intersection between tacit and explicit knowledge. The researchers noted that these interactions occurred along four modes: Socialisation, Externalisation, Combination and Internalisation. This is referred to as the SECI model. The engagement of consultants to implement IS, in light of the SECI model, suggests that processes like socialisation occurs between consultants and individuals in the implementing firm. Consequently, the SECI model becomes am important mechanism that may explain knowledge transfer between consultants and SMEs.

In the SECI model, socialisation is the process of converting existing tacit knowledge into new tacit knowledge. It is usually achieved through sharing experience and

interacting with other people that are internal or external to the organisation. External parties include consultants. Externalisation is the process of articulating tacit knowledge into explicit knowledge. Converting tacit knowledge to explicit allows it to be shared by others and it becomes the basis of new knowledge. Since consultants engage in knowledge sharing or transfer (Carey, 2008) they likely make use of the externalisation process. Combination is the process of converting explicit knowledge into more complex and systemic sets of explicit knowledge. Explicit knowledge is collected from inside or outside the organisation and then combined, edited or processed to form new knowledge. Explicit knowledge collected from outside the organisation may come from sources such as consultants. Internalisation is the process of embodying explicit knowledge into tacit knowledge. Explicit knowledge is shared throughout an organisation and converted into tacit knowledge by individuals (Nonaka et al., 2006).

Organisational knowledge creation is context dependent. The context for knowledge creation is *ba* (Nonaka and Konno, 1998; Nonaka, Toyama and Konno, 2000), a Japanese concept that roughly translates into English as '*space'*. Ba is a shared space for emerging relationships. It can be a physical, virtual or mental space, where knowledge is acquired through individual experiences, or reflections on the experience of others (Nonaka et al., 2006). Four types of *ba* are used to represent the four modes of knowledge creation: socialisation, internalisation, externalisation and combination (Nonaka and Takeuchi, 1995).

(1) Originating *ba* refers to a place where individuals share experiences mainly through face-to-face communications and by being at the same place at the same time. The formulation of originating *ba* is associated with the socialisation mode of knowledge creation (Chou and Wang, 2003).

(2) Interacting *ba* refers to a place where tacit knowledge is converted to explicit knowledge and shared among the members of an organisation through dialogue and collaboration. Interacting *ba* contributes to the externalisation mode of knowledge creation (Chou and Wang, 2003).

(3) Cyber *ba* refers to a virtual community where individuals communicate with other people. The combination mode of knowledge creation can be fulfilled by cyber *ba*.

(4) Exercising *ba* refers to a place for the conversion of explicit knowledge to tacit knowledge through the internalisation mode. Exercising *ba* is therefore a place in which organisational members actively engage in individual and organisational learning actively (Chou and Wang, 2003).

Chou and Wang (2003) discussed four different types of context for knowledge. The combination of cyber and exercising *bas* gives rise to an "*electronic repository*" to store knowledge. The IT capabilities that facilitate knowledge creation are provided here, which include databases, groupware and documents. In addition, formal training and well-organised repositories can contribute to active and continuous individual learning (Chou and Wang, 2003). The combination of originating and interacting bas facilitates tacit knowledge. Here individuals engage in socialisation and externalisation modes of knowledge creation. Individuals share their tacit knowledge with other organisation members (Chou and Wang, 2003). Originating and exercising bas support a community where individuals are willing to interact with other members. This supports the socialisation mode of knowledge creation. In a learning community, individuals achieve active and continuous learning by exchanging their experiences with other members. It is possible that individuals may perform the conversion of explicit knowledge to tacit knowledge through an internalisation process (Chou and Wang, 2003). Associated with

the externalisation mode of knowledge creation is intersecting *ba*. This is a place where tacit knowledge is shared among individuals through dialogue and collaboration (Chou and Wang, 2003).

Chou and Wang (2003) found that IT capabilities related to the distribution of information are crucial for the creation of knowledge and organisational learning. The researchers suggested that electronic repositories, collaboration, communication, e-mail, and simulation software could facilitate teamwork, exchanging and organising knowledge as well as individual learning (Chou and Wang, 2003). The study also found that intervening conditions for adopting IT, like the willingness to share best practices and mutual trust, could affect knowledge creation.

The transfer of knowledge or the conversion of knowledge, is embedded in the theory of organisational knowledge creation. According to Alavi and Leidner (2001) knowledge transfer occurs at various levels: between individuals; from individuals to explicit sources; from individuals to groups; between groups; across groups, and from the group to the organisation. Since knowledge transfer, a key element of the theory of organisational knowledge creation occurs between individuals it becomes relevant to consultant-SME context. This is because the consultant-SME context brings individuals together, the consultant and employees of the implementing SME.

Massey and Montoya-Wiess (2006) note that knowledge conversion (KC) is the process by which individuals are affected by the experience of another. Experience is embodied in the mind of individuals (i.e. tacit knowledge) or can be a knowledge artefact (i.e. explicit knowledge), which includes documents, diagrams and procedures (Massey and Montoya-Wiess, 2006). This is also relevant in the consultant-SME context since

individuals in SMEs are likely to be affected by the experience possessed by consultants. Additionally, implementation of IS will involve to use of explicit knowledge such as documents (manuals) and procedures.

2.5.3.1 Outcomes of knowledge creation

Nonaka and von Grogh (2009) propose knowledge outcomes and social outcomes as two ways to understand the outcome of knowledge conversion. Knowledge outcomes have three parts: 1) The ultimate outcome of knowledge conversion is product and process innovations. 2) The capacity to act and 3) The capacity to act, define, and solve problems can be explicit and/or tacit along a continuum (Nonaka and von Grogh, 2009).

Massey and Montoya-Wiess (2006) used the theory of knowledge creation to develop a model of media selection and use in the knowledge conversion process. Seeing knowledge conversion as a process wherein individuals are affected by the experiences of others, Massey and Montoya-Wiess (2006) note that the outcome of knowledge conversion is transferred and transformed knowledge. This transformed knowledge is referred to as knowledge assets (Nonaka et al., 2000).

It is therefore expected that within the consultant-SME context the transfer of knowledge from consultant to SME is likely to result in the creation of knowledge assets in implementing SMEs. The knowledge assets should then enable SMEs to act with regards to the implemented IS. One aspect of '*acting'* is likely to be the utilisation of any implemented IS.

Table 2.8 summarises some of the main points about knowledge creation/transfer from prior research.

Author(s)	Knowledge Creation/Transfer
Nonaka and Takeuchi (1995)	Knowledge creation occurs along: Socialisation, Externalisation, Combination and Internalisation.
Nonaka et al. (2000)	Outcome of knowledge creation: 1) Knowledge assets
Alavi and Leidner (2001)	Knowledge transfer occurs: between individuals; from individuals to explicit sources; from individuals to groups; between groups; across groups, and from the group to the organisation.
Chou and Wang (2003)	IT capabilities related to the distribution of information are crucial for the creation of knowledge.
Massey and Montoya-Wiess (2006)	KC is the process by which individuals are affected by the experience of another. Outcomes of knowledge creation: 1) Transformed knowledge
Nonaka and von Grogh (2009)	Outcomes of knowledge creation: 1) Product and process innovations 2) The capacity to act 3) Explicit and/or tacit capacity to act

Table 2.8: Summary of the main points related to knowledge creation/transfer

2.5.3.1.1 Knowledge Assets (KAs)

The concept of organisational knowledge in the form of knowledge assets and the process of knowledge creation is central to the KBV of the firm. Knowledge assets are the outcomes of, or the inputs to knowledge creating processes within the firm. Therefore knowledge assets are the likely outcomes of the knowledge transfer that occurs between consultants and SMEs during the implementation of IS.

Knowledge assets are also moderators or elements that facilitate knowledge creation processes (Nonaka et al., 2000). They are intangible, change dynamically and are tied to the firm, hence they are not easy to imitate. Knowledge assets consist of knowledge recently created such as routines and know-how, concepts, patents, techniques, design or brands (Nonaka et al., 2006). Trust among organisational members is an example of

a knowledge asset and is produced as an output of the knowledge creation process. At the same time, it may moderate certain knowledge creation processes (Chou and He, 2004). The transfer of knowledge between consultants and SMEs may result in knowledge assets such as know-how related to the implemented IS.

A firm needs to create knowledge assets in order to meet its reason for existence, which requires time and resources. Consequently, knowledge assets are the focus of the firm's strategic decision-making and resource allocation (Nonaka and Toyama, 2005). Firms make use of four knowledge strategies which allows them to align with changes to the environment: (i) Firms allocate resources to leverage knowledge assets, making them available, (ii) firms expand their existing knowledge assets further, (iii) firms build knowledge assets internally by appropriating information and knowledge from markets, strategic partners, customers, suppliers or other external constituents and (iv) firms explore and develop completely new technology assets by probing new technologies or markets (Nonaka and Toyama, 2005). Knowledge assets may be categorised into four different types – experiential, conceptual, systemic, and routine (Nonaka et al., 2000).

Experiential knowledge assets

Experiential knowledge assets consist of the tacit knowledge that is built through shared hands-on or working experience among employees. This knowledge can be shared between the members of an organisation and its customers, suppliers, and affiliated firms. Other examples of experiential knowledge assets are skills and know-how that are acquired and retained by individuals from their working experiences. In as much as consultants supply knowledge, experiential knowledge assets are likely to be transferred between consultants and SMEs. Additionally, it is expected that SME would develop skill and know-how related any implemented IS.

There are four other types of experiential knowledge assets: emotional knowledge such as care, love, and trust; physical knowledge such as facial expressions and gestures; energetic knowledge such as a sense of existence, enthusiasm, and tension and rhythmic knowledge such as improvisation and entrainment. The contents of experiential knowledge assets are tacit; therefore, they are usually difficult to grasp, evaluate, and trade. Since experiential knowledge assets are tacit in nature and are difficult to imitate, they play a critical role in gaining a sustainable competitive advantage for a firm. Experiential knowledge assets include experiences, skills, care, trust, facial expressions, enthusiasm and tension (Chou and He, 2004).

Conceptual knowledge assets

Conceptual knowledge assets consist of explicit knowledge articulated through images, symbols and languages. They are the assets based on perceptions held by customers and employees of the organisation. Conceptual knowledge assets usually have tangible forms, are easier to articulate and comprise of know-what or declarative knowledge and are likely to benefit externalisation (Chou and He, 2004). In the consultant-client context this type of knowledge asset is more likely to reside with consultants than with SMEs.

Systemic knowledge assets

Systemic knowledge assets consist of systematised and packaged explicit knowledge, such as explicitly stated technologies, product specifications, manuals, documentation and packaged information about customers and suppliers. Since systemic knowledge assets are visible and tangible, they can be transferred easily. Most knowledge management focuses on systemic knowledge assets. In the consultant-client context

SMEs would are likely to gain knowledge assets such as technologies (the implemented IS), software manuals and other documentation provided by consultants. Therefore consultants are likely to contribute to the existence of systemic knowledge assets in SMEs.

A characteristic of systemic knowledge assets is that they can be transferred relatively easily, since the task orientation of systemic knowledge assets is explicit or know-what knowledge. In addition, systemic knowledge assets facilitate dynamic interaction in which individual units of knowledge are combined and exchanged through communication and collaboration across different functional groups. The definition of combination is converting explicit knowledge into more complex and systemic sets of explicit knowledge. In order to convert the knowledge, explicit knowledge is collected from inside or outside the organisation and then combined, edited, or processed to form new knowledge (Chou and He, 2004).

Routine knowledge assets

This type of asset consists of the tacit knowledge that is embedded and regulated in the actions and practices of a firm. Know-how, working practices, organisational culture, and organisational routines for carrying out day-to-day business are examples of routine knowledge assets. In order to formulate routine knowledge assets organisational members share, integrate, and continuously exercise routine practices to form certain patterns of thinking and action (Chou and He, 2004). In the consultant-SME context it is likely that SMEs will gain know-how, in terms of the daily or regular use of any implemented IS, from consultants. This may manifest itself, for example, in the form of procedures on how to utilise the implemented system to meet the needs of the SME.

Chou and He (2004) investigated the relationships among the above four categories of knowledge assets and the four knowledge creation processes or SECI model. The study found that conceptual knowledge assets have a greater effect on the externalisation knowledge creation process than the other knowledge creation processes. Routine knowledge assets have a greater effect on the socialisation knowledge creation process than the other knowledge creation processes, experiential knowledge assets do not have a greater effect on the internalisation knowledge creation process and systemic knowledge assets do not have a greater effect on the combination knowledge creation process (Chou and He, 2004).

Knowledge assets have been categorised differently by another researcher. Rodgers (2003) attempted to classify and value knowledge assets (or knowledge-based assets) in an effort to include them along with historical-cost based financial statements. Rodgers (2003) categorised knowledge assets into three groups:

- ***Human knowledge assets***: These include attitudes, perceptions, and abilities of employees: and their motivation commitment and adaptability to the company. This is knowledge that each individual has and generates. In the consultant-client context it is likely that consultants would influence human knowledge assets by enhancing the abilities of employees.
- ***Organisational knowledge assets***: These include intellectual property such as brands, copyrights, patents, trademarks and infrastructures including culture and process capability. Organisational capital also includes knowledge that has been captured/institutionalised within structure, processes, and culture of an organisation. That is, sharing and transporting knowledge needs structural intellectual assets such as distribution channels, communication systems, competitive market channels, which turn individual know-how into the property

of the organisation. This classification of organisational knowledge assets does not readily or easily reflect how consultants could influence or effect organisational knowledge assets.

- ***Relational knowledge assets***: These are knowledge of and acquaintance with communities, competitors, customers, government, and suppliers in which the company operates. Since consultants can be understood as supplying knowledge to SMEs, in the context of consultant and SMEs consultant are likely to contribute to relation knowledge assets.

For this study however, the categorisation proposed by Rogers (2003) will not be used to understand knowledge assets arising within the consultant-client context. A key reason behind this is the difficulty with the classification of organisational knowledge assets, which does not readily reveal how the consultants-SME context applies. The categorisation provided by Chou and He (2004) provides a clearer way to understand knowledge assets arising from the consultant-client context and so this is the categorisation utilised in this study.

Table 2.9 summarises some of the classifications used for knowledge assets from prior research.

Author(s)	Classification of Knowledge Assets
Nonaka et al. (2000)	Experiential, conceptual, systemic, and routine
Rodgers (2003)	Human, organisational and relational
Chou and He (2004)	Experiential, conceptual, systemic, and routine
Nonaka et al. (2006)	Routines, know-how, concepts, patents, techniques, design or brands
Massey and Montoya-Wiess (2006)	Knowledge artefacts: Documents, diagrams and procedures

Table 2.9: Summary of the classification of knowledge assets

2.5.3.2 Knowledge Transfer Channels

Alavi and Leidner (2001) note that communication processes and information flows drive knowledge transfer in organisations. The researchers also discussed five key elements of knowledge transfer:

- Perceived value of the source unit's knowledge,
- Motivational disposition of the source (i.e., their willingness to share knowledge)
- The existence and richness of transmission channels
- Motivational disposition of the receiving unit (i.e., their willingness to acquire knowledge from the source)
- The absorptive capacity of the receiving unit, defined as the ability not only to acquire and assimilate but also to use knowledge (Alavi and Leidner, 2001).

Knowledge transfer channels have been the focus of much of the literature (Alavi and Leidner, 2001). In discussing knowledge transfer channels Alavi and Leidner (2001) note that these channels can be informal or formal, personal or impersonal. Informal channels include: unscheduled meetings, informal seminars, or coffee break conversations. It is noted that such channels may also be more effective in small organisations.

Formal transfer channels include: training sessions and organisational tours. These may lead to greater distribution of knowledge. Personal channels include: apprenticeships or personnel transfers and may be more effective for distributing highly context specific knowledge. Impersonal channels include: knowledge repositories and may be most effective for knowledge that can be readily generalised to other contexts (Alavi and Leidner, 2001). Dawson (2005) states that knowledge transfer is dependent on

communication and highlighted four enablers of knowledge transfer during communication; (i) interactivity, (ii) bandwidth, (iii) structure and (iv) reusability. Interactivity relates to the degree to which the flow of information between people or organisations is two-way as opposed to one-way. Knowledge is developed through discussion and interaction with others (Dawson, 2005 and Nonaka and Toyama, 2005). Dialogue is a basic but effective model of interactivity.

According to Dowson (2005) bandwidth refers to the amount of information that can be communicated over a given period. The more channels of communication used within a consultant-client relationship the more the total bandwidth. Structure deals with how easily the relationships within and between ideas and information can be communicated. In addition structure deals with the ability to structure information so it is aligned with the structure of the client's mental models, which allows it to be more easily internalised as knowledge. Reusability is the ability to reuse communication for other people. Communication, and the embodied knowledge, may be referred to again by the same or other people in the organisation. Table 2.5, adapted from Dawson (2000) shows the knowledge transfer capability of the different communication channels.

	Interactivity	**Bandwidth**	**Structure**	**Reusability**
Documents	Nil	Low	High	High
Meetings	Very High	Very High	Low-Medium	Low
Workshops	Very High	Very High	Medium	Low
Training	Medium	High	High	Medium

Table 2.10: Knowledge transfer capability of communication channels (adapted from Dawson (2000))

Massey and Montoya-Wiess (2006) suggest that the knowledge conversion process occurs through a series of interactions over time that take two fundamental forms: (i) indirect knowledge conversion occurs when individuals interact with a knowledge artefact (e.g., reflecting on a document); (ii) direct knowledge conversion occurs when there is communicative activity between participants (human-to-human).

Knowledge repository systems and communication and discourse systems enable knowledge conversion (Massey and Montoya-Wiess, 2006). Communication and discourse systems include face-to-face interaction and technology-based options like telephone, video-conferencing, instant messenger, e-mail, groupware, and voice-mail (Massey and Montoya-Wiess, 2006). Knowledge repository systems provide access to knowledge artefacts including structured data, diagrams, text-based documents, models, and images (Massey and Montoya-Wiess, 2006). Knowledge artefacts make structured, explicit knowledge available to an organisation and its members via electronic systems such as data warehouses, best-practice databases, Intranets or Internets, and portals (Massey and Montoya-Wiess, 2006).

Table 2.11 is a summary of some of the knowledge transfer channels discussed in prior research.

Author(s)	Knowledge Transfer Channels
Alavi and Leidner (2001)	Informal, formal, personal and impersonal
Dawson (2005)	Communication, Interaction and discussion
Nonaka and Toyama (2005)	Discussion and interaction
Massey and Montoya-Wiess (2006)	Interactions, knowledge repository systems, communication and discourse systems

Table 2.11: Summary of knowledge transfer channels

2.5.3.3 Conclusions from KBT

In concluding this section it is noted that the knowledge-based view of the firm and an understanding of knowledge assets and their creation provide an ideal way of examining SMEs. As a theory of the firm, the knowledge-based view serves the wider purpose of explaining the nature of the firm (Nonaka and Toyama, 2005). The nature of SMEs is described as one lacking in knowledge and is an important consideration when researching SMEs. Therefore, using knowledge-based theory of the firm is an ideal way to view SMEs.

How firms acquire and convert tacit knowledge is also critical for knowledge creation (Chou and Wang, 2003). Nonaka (1994) proposed that organisations should be studied according to how they create knowledge. Nonaka and Toyama (2005) state that firms build knowledge assets internally by appropriating information and knowledge from markets, strategic partners, customers, suppliers or other external constituents. Firms create knowledge by synthesising their own knowledge and knowledge embedded in various outside parties. These outside parties include customers, suppliers and even competitors (Nonaka and Toyama, 2005). Consultants may also be included in these outside parties as research suggests that consultants transfer knowledge to SMEs (Carey, 2008). Therefore, KBT and organisational knowledge creation theory are useful for examining SMEs.

The knowledge-based view, and the in-bedded knowledge creation theory, is most appropriate to understand how knowledge is created through the consultant-client interactions. From the knowledge-based perspective, the creation of knowledge assets is important for organisations. The implementation of IS when viewed from this perspective suggests that knowledge creation takes place during consultant-client

interactions. Implementing a system is not a simple case of installing the hardware and software but involves knowledge transfer, which results from interaction among people (Dawson, 2005). Swanson and Wang (2005) posited that for innovation success it was necessary for a firm to have adoption know-why and implementation know-how. The significant know-how factors for innovation success were vendor support and management understanding with know-how being embodied in vendor support (Swanson and Wang, 2005). Therefore, knowledge-based theory is ideally suited for examining the interactions between consultants and SMEs.

2.6 Summary

It has been shown that past researchers had realised the importance or value of external experts to the implementation of IT/IS in SMEs. Back then the impact of consultants was studied as consultant effectiveness (Thong et al., 1994, 1997; Thong, 2001; de Guinea et al., 2005). The research was focussed on the consultant's performance during the feasibility study, and during the implementation project paying attention to the client's satisfaction with the consultant's performance. This early research however, although highlighting the importance of consultants does not go far enough in explaining how consultants impact SMEs. In other words, the research does not provide an answer to the question: In what ways do consultants impact or affect SMEs during IS implementation? This study will attempt to fill this gap by providing an answer to this question.

More recent studies examining the use of consultants by SMEs focus on the various intermediary roles of consultants. The intermediary role involves consultants transferring knowledge to the contracting organisation (for example Howcroft and Light,

(2008) and Carey, (2008)). However, these studies fall short of identifying the types and kinds of knowledge that consultants transfer to SMEs. Similarly, these studies do not indicate exactly how consultants impact SMEs.

In addition to the focus on the role of consultants in the consultant-SME relationship this study focuses on the organisation as well. Nevo et al. (2007) noted that firms obtained tangible benefits from using external IT consultants but the level of existing internal capabilities moderated the benefits. In addition, Dibbern and Heinzl (2009) pointed out that the IS outsourcing decision of SMEs was influenced by a firm's resources. And, Dutta et al, (2011) found that internal IT capability influenced the outsourcing strategy of firms including SMEs. In essence, these studies suggest that the nature of the organisation may be important in IT outsourcing decisions. In the case of SMEs their nature (lacking in IS resources and IS knowledge) is seen as crucial to understanding these organisations. Thong (2001) and Caldiera and Ward (2003) utilised resource-based theory to examine IS implementation and adoption, however these studies in addition to the ones previously mentioned do not indicate how or even if engaging consultants affects the IS capabilities or abilities of a firm; neither do they shed light on the impact of engaging consultants.

When researching SMEs it is necessary to consider the nature of SMEs. This study will fill this gap and address this issue by using two well known theories of the firm, RBT and KBT to examine the engagement of consultants and the implementation of IS in SMEs. Nonaka (1994) stated that organisational knowledge creation theory raised questions about how organisations process knowledge and, more importantly, how they create new knowledge. Nonaka (1994) further insisted that the organisation should be

studied from the perspective of how it creates knowledge, rather than how it processes these entities.

3 Research Design

3.1 Introduction

The overarching research question and subsequent research objectives are derived from the discussion and review of the literature presented in Chapter 2. The research design, used in order to meet the research objectives, is presented and discussed in this chapter. The chapter commences by presenting the main research question and related sub-questions. The objectives of each question are then discussed. The chapter is then used to present and discuss the methodology underpinning this research. A pragmatic stance is adopted for this study. The research method employed to generate meaningful data is then presented followed by a description of the approach.

Chapter 3 includes to the following sections:

3.2 Study Objectives

3.3 Research Philosophy

3.4 Research Method

3.5 The Case Study Design

3.6 Chapter Summary

3.2 Objectives

In Chapter 2 it was revealed that prior research has not addressed the impact of consultants on SMEs during the implementation of IS. In other words, research has not addressed the effect or influence consultants have on firms resulting from encounters based on IS implementation projects. Chapter 2 postulated that consultants play an intermediary role in SMEs where they transfer knowledge to client organisations. However, the following questions must be asked: What kind of knowledge is

transferred or what knowledge is created by SMEs when these firms interact with consultants? Prior research does not provide us with an answer to these questions.

The review of literature in Chapter 2 reveals that a firm's IS resources and IT/IS capabilities are important considerations when adopting, implementing or deciding on the outsourcing of IT. While research has shown the importance of IS resources and IT/IS capabilities, it does not reveal the effect, if any, that consultants may have on the capabilities of SMEs during the implementation of IS. Based on the areas identified the following overarching research question is posed:

> How do consultants impact or influence SMEs when these organisations engage consultants to implement information systems?

From the main research question two sub-questions emerge:

1. What role do IS consultants undertake or play when they assist SMEs with the implementation of IS?
   1.1. How do consultants, by fulfilling their role impact or influence SMEs?
2. How can theories of the firm be used to explain the impact that IS consultants have on SMEs?
   2.1. How can the effect of consultants on SMEs be explained using KBT?
   2.2. How can the effect of consultants on SMEs be explained using RBT (focussing on the abilities of SMEs)?

To provide answers to the questions posed in this study the following research objectives are proposed. By addressing these objectives, this study will ultimately provide an answer to these questions.

Objective 1: To determine the role(s) that consultants undertake and how that role(s) influence(s) SMEs.

Consultants have traditionally been seen as mediators. This objective is designed to provide an answer to research question one. It is expected that this objective, when achieved, will provide a deeper understanding of the kinds of role(s) consultants play as well as provide a deeper understanding of their role as intermediaries. In addition, this objective is designed to explore and explain how, by executing their role consultants affect the implementing organisation. The nature of SMEs is taken into consideration when exploring the effect of IS consultants. Finally, this objective should reveal how consultants can be best utilised to provide the most benefit to the implementing organisation.

Objective 2: To determine the impact that IS consultants have on IS knowledge of SMEs by utilising KBT.

Objective 3: To determine the impact that IS consultants have on IS abilities of SMEs by utilising RBT.

Having explored in detail the role of IS consultants, the objectives listed are designed to determine the impact consultants have on SMEs by applying RBT and KBT. By so doing these objectives will provide an answer to research question two.

The objectives are further designed to gain in-depth understanding of the interactions between IS consultants and SMEs. It is achieving these objectives that this study begins

to build or develop a theoretical explanation of the impact that consultants have on SMEs, when these organisations engage consultants to implement IS.

The following section is used to discuss the research philosophy underpinning this study.

3.3 Research Philosophy

Research philosophy is concerned with the development and nature of knowledge. The research philosophy adopted contains assumptions about the view of the world. These assumptions underline the choice of research strategy and methods chosen as part of the strategy (Saunders, Lewis and Thornhill, 2009). Following Saunders et al. (2009) this section considers the following four research philosophies:

(i). Positivism

(ii). Realism

(iii). Interpretivism

(iv). Pragmatism

There are two major ways of looking at these research philosophies: ontologically and epistemologically. Ontology is concerned with the nature of reality (Easterby-Smith, Thorpe and Jackson, 2008 and Saunders et al., 2009). The defining question relates to the assumptions made about the way the world operates (Saunders et al., 2009). Even when a researcher does not expressly state his view of the nature of reality, they are still making assumptions about the nature of reality. These assumptions have implications for the way research is designed and ultimately the understanding of data collected.

Saunders et al. (2009) discuss two aspects of ontology common among business and management researchers: objectivism and subjectivism. Objectivism describes the

position that social entities are external; they exist in a reality external to social actors or observers (Saunders et al., 2009). Subjectivism on the other hand describes the position that social phenomena are created or originates from the perceptions and consequent actions of social actors or observers (Saunders et al., 2009).

Epistemology is concerned with the nature of knowledge and what is accepted as knowledge in a field of study (Saunders et al., 2009). Put differently, epistemology defines the assumptions one makes when deciding on the best way of inquiring into the nature of the world (Easterby-Smith et al., 2008). Therefore, epistemology embodies a researcher's view of the relationship between knowledge and the process by which it is developed. For example, Saunders et al. (2009) point out that the researcher who sees reality as represented by objects that are considered to be '*real'*, such as computers, trucks and machines, is comfortable with the collection and analysis of '*facts'*. This researcher is likely to have a very different view on the way research should be conducted from a researcher who is concerned with the feelings and attributes of workers towards their manager. This is because feelings and attitudes are considered social phenomena that have no external reality and therefore cannot be seen, measured or modified like computers, trucks and machines.

The four research philosophies are now discussed in relation to the ontological and epistemological view associated with each. The positivist view is that reality is composed of objects that are considered real (Saunders et al., 2009). These objects exist independently of the researcher. The main point of the positivist view is that the social world exists externally. Properties of this external reality should be measured through objective methods instead of subjective methods like sensation, reflection or intuition

(Easterby-Smith et al., 2008). The key components of positivism are summarised as follows (Easterby-Smith et al., 2008):

- Independence: the observer must be independent from what is being observed.
- Value-freedom: the choice of what to study, and how to study it, can be determined by objective criteria rather than by human beliefs and interests.
- Causality: the aim of social research should be to identify causal explanations and fundamental laws that explain regularities in human behaviour.
- Hypothesis and deduction: science proceeds through a process of hypothesising fundamental laws and then deducing what kinds of observations will demonstrate the truth or falsity of these hypotheses.
- Operationalisation: concepts need to be operationalised in a way that enables facts to be measured quantitatively.
- Reductionism: problems as a whole are better understood if they are reduced into the simplest possible elements.
- Generalisation: in order to be able to generalise about regularities in human and social behaviour it is necessary to select samples of sufficient size, from which inferences may be drawn about the wider population.
- Cross-sectional analysis: making comparisons of variations across samples can most easily identify regularities in human and social behaviour.

The next research philosophy, interpretivism, states that it is necessary for the researcher to understand the differences between humans in our role as social actors. Saunders et al. (2009) noted that the challenge for researchers was to enter the social world of research subjects and understand their world from their point of view. Researchers should therefore adopt an empathetic stance in conducting research.

Easterby-Smith et al. (2008) in discussing social constructionism, which relates to interpretivism, note that reality is socially constructed and given meaning by people. Therefore, reality is not objective and exterior. Social constructionists focus on what people are thinking and feeling and how they communicate with each other. Instead of gathering facts and measuring how often certain patterns occur. Like positivists, constructionists appreciate the different constructions and meanings that people place upon their experiences (Easterby-Smith et al., 2008). Human action or behaviour is constructed from the sense they make of different situations and not simply by a direct response to external stimuli. Therefore, social constructionism advocates that researchers should try to understand and explain why the experiences of people differ rather than search for external causes and fundamental laws to explain behaviour (Easterby-Smith et al., 2008). Easterby-Smith et al. (2008) summarise the key components of social constructionism as follows:

- The observer is part of what is being observed.
- Human interests are the main drivers of science.
- The aim is to increase understanding of the situation.
- Research progresses through gathering rich data from which ideas are induced.
- Concepts should incorporate stakeholder perspectives.
- Unit of analysis may include the complexity of '*whole'* situations.
- Generalisation is achieved through theoretical abstraction.
- Small numbers of cases chosen for specific reasons.

Realism states that what the senses show us, as reality, is the truth. Objects exist independently of the human mind. Realism is similar (in some aspects) to positivism in the way knowledge is developed (Saunders et al., 2009). Realism is better understood by considering two forms of realism: direct realism and critical realism. Direct realism

says that what we experience through our senses portrays the world accurately. Critical realism states that what we experience are the sensations, the images of the things in the real world, not the things directly (Saunders et al., 2009).

Realism, in particular critical realism is a variant of what is termed relativism. Relativism states that observations will be more credible or accurate if they are made from several perspectives. Reality is independent of the observer and one should therefore attempt to identify this pre-existing reality. This is achieved through multiple perspectives since direct access to reality is considered difficult (Easterby-Smith et al., 2008).

Pragmatism involves a more practical approach in that the most important determination of ontology and epistemology is the research question. Pragmatism suggests that knowledge and understanding should be derived from direct experience (Easterby-Smith et al., 2008). This further suggests that there are no pre-determined theories or frameworks that shape knowledge and understanding. Proponents of this view highlight the need to balance concrete and abstract on one hand, and reflection and observation on the other (Easterby-Smith et al., 2008). Pragmatism therefore integrates different perspectives to collect and interpret data, insisting that it is possible to work within both positivist and interpretivist positions (Saunders et al., 2009).

This researcher contends that the nature of reality is not necessarily as polarised as some of the perspectives discussed above (namely positivism and interpretivism). While social entities can be external and independent of the social actor, social phenomena can originate from the perceptions of social actors. For example, while truth may be determined through consensus, facts can be concrete and external. One can posit that the

nature of reality is not at polar extremes but may be more like a continuum. There are points where the social entity and social actor must interact and points where they stand apart (Saunders et al., 2009). What becomes important then is the question that the researcher wishes to answer. To provide answers to the questions posed, the phenomena should be studied in different ways as deemed appropriate by the researcher (Saunders et al., 2009). As such, conducting research may require the researcher to consider the social phenomena as moving from concrete experience, to reflective observation, to abstract conceptualisation, to active experiment (Easterby-Smith et al., 2008).

It was noted that the most important consideration from a pragmatic philosophy is the research question posed in a study. The main question posed by this study is to know how consultants influence SMEs during IS implementation projects. This is a broad question that requires multiple perspectives in order to provide a meaningful answer. Considering the question and objectives presented at the start of this chapter the following are noted:

(i). The impact of consultants on SMEs will involve examining the interactions, relationships, feelings, attitudes and perceptions of all parties involved in IS implementation projects.

(ii). The impact of consultants on SMEs will involve exploring knowledge. Knowledge may be viewed as a concrete object but it may also be viewed as embodied in individuals, that is, given meaning by the individual.

(iii). The impact of consultants on SMEs will involve identifying IS abilities which like knowledge may be understood as concrete and external, but which may also be embodied in individuals.

Therefore, in order to understand how consultants affect or influence SMEs different perspectives are necessary to move from viewing objects as external and concrete to

viewing them as socially created in the interactions of the people involved. This may be likened to learning, which is closely related to knowledge and its creation. Easterby-Smith et al. (2008) note that the Kolb Learning Cycle (Kolb, 1994) adopts a pragmatic approach, suggesting that learning occurs as a continual movement from concrete experience, to reflective observation, to abstract conceptualisation, to active experimentation and back to concrete experience.

Individuals see the world or reality differently. Researchers' view of the nature of reality is important for the research undertaken and the subsequent conclusions that are made. This study is grounded by a pragmatic philosophy. In the following section the methods used in this study to generate data are discussed in relation to the pragmatic stance adopted in this study.

3.4 Methods

3.4.1 Research Approach

There are two main research approaches: deduction and induction. In simple terms, deduction starts with a theory and a hypothesis (or hypotheses). A research strategy is designed to test the hypothesis. With induction, data are collected and a theory is developed as a result of the data analysis (Saunders et al., 2009). The authors also note that the most important issues, regarding the research approach, relates to the nature of the research topic. For example, a topic on which there is lots of literature from which a theoretical framework could be developed and a hypothesis made, lends itself to deduction. On the other hand, research into a topic that is new and on which there is little existing literature, induction may be the more appropriate approach to answer the research question posed (see Saunders et al., 2009).

However, as warned by Saunders et al. (2009) neither approach should be thought of as better than the other; they are better at different things. The choice of approach therefore depends on the emphasis of the research. Considering the research questions and objectives of this study both approaches are likely to be needed in order to provide answers and give meaning to the outcomes of this study. This is because this study aims to understand the effect that consultants have on SMEs in order to develop theory and subsequent propositions about the impact of consultants. This aim will be addressed by meeting the first objective and research question. It is felt that an inductive approach will be a more appropriate way to address this aspect of the aims of the research.

In addition, this study seeks to determine the impact that consultants have on knowledge and abilities. That is, how are these aspects of the firm affected by the actions and activities of consultants? This aim will be addressed my meeting Objectives 2 and 3 and will therefore provide an answer to the second research question posed in this study. It if felt that a combination of induction and deduction will be more useful to meet the aims of this stage of the study. It is noted here, that in line with a pragmatic philosophical perspective the research question(s) remain the central guide to the approaches described in this section. In the following section the detailed design of the study is presented and discussed.

3.4.2 Research Strategy

It is noted that one's philosophical position paves the way for the methods that one would use to generate data. Borrowing from the different perspectives is an ideal approach for this study and is in-line with pragmatic philosophy. This is because a pragmatic philosophy recognises that reality may be represented by objects but that it

may also be determined by people. This study proposes to understand and describe how consultants affect SMEs during IS implementation, as such it is necessary to have various points of view in order to understand exactly what transpires during consultant-client interactions. For example, it may be easy to identify and describe a specific effect, '*an object*' resulting from consultant-SME interactions. Such an object could be a type of knowledge or ability, which are two areas of interest in this study. In this instance knowledge or ability is treated as an object with properties and attributes that can be expressed independently of people. How these objects came about becomes of interest and how did this type of knowledge or ability come to exist? At this point it is worth noting that knowledge, as an example, resides with individuals, created by individuals and is unique to them. As noted by Nonaka et al. (2008) in the introduction to "Managing Flow: A Process Theory of the Knowledge-Based Firm":

> *"Since knowledge is created by human beings we cannot theorise knowledge creation apart from human subjectivities, such as individual thoughts and feelings, ideas and hunches, and dreams. And we cannot understand how firms create knowledge that is unique to them unless we understand the role and function of human subjectivity in the process."*

Therefore, it is necessary that the objective and the subjective be taken into account in order to generate data that will shed light on the impact that consultants have on SMEs during IS implementation.

The primary question asked by this study is concerned with how consultants impact SMEs when these organisations engage consultants to implement information systems. Referring to Table 3.1 the aim of such a question, and sub-questions, is exposure and invention. Exposure is chosen because the aim of the question(s) is to make known the impact of consultants and describe the nature of the impact. Invention is chosen because

the aim is also to create propositions about the impact of consultants (develop theory). Also, the question of how consultants impact SMEs indicates that the starting point of this study is '*meaning.'* However, in looking at the impact that consultants may have on IS knowledge and IS competencies, it is worthwhile to start out with propositions. The how questions posed by this study also indicate that the design would be characterised by '*reflexivity*', the techniques to generate data would be conversation, the analysis would involve a '*sense-making'* approach and the ultimate outcome of the study would be '*understanding'*. In essence this study may be viewed as being exploratory and confirmatory. Therefore as shown in Table 3.1 this study includes elements of Relativism and Social Constructionism.

	Positivism	**Relativism**	**Social constructionism**
Aims	Discovery	Exposure	Invention
Starting points	Hypotheses	Propositions	Meaning
Designs	Experiment	Triangulation	Reflexivity
Techniques	Measurement	Survey	Conversation
Analysis/interpretation	Verification/falsification	Probability	Sense-making
Outcomes	Causality	Correlation	Understanding

Table 3.1: Aims and objectives associated with different philosophies within Social Science (Adapted from Easterby-Smith et al., 2008)

In order to answer the research question(s) posed by this research and to fulfil the objectives defined in this chapter it is necessary to utilise an appropriate method to generate data. In thinking about methods to generate data it is useful to consider the following table presented by Easterby-Smith et al. (2008):

	Positivist	Relativist	Constructionist
Action Research	*		**
Case method	*	*	*
Collaborative research			**
Cooperative inquiry			**
Ethnography			**
Experimental methods	**	*	
Grounded Theory	*	*	**
Narrative methods			**
Quasi-experimental research	**	*	
Survey feedback	*	*	*
Survey research	*	*	*

Table 3.2: Research methods mapped against research philosophies (Adapted from Easterby-Smith et al., 2008)

Following the guidance of Easterby-Smith et al. (2008), as shown in Table 3.3, two methods are applicable to the current study; survey research and case method. The survey strategy is popular and common in business and management research. It is most often used to answer who, what, where, how much and how many questions (Yin, 2003 and Saunders et al., 2009). Quantitative data is usually collected and analysed using descriptive and inferential statistics to look for patterns and generalisations (Oates, 2006). The data collected using surveys are often used to suggest possible reasons for relationships between variables and to develop models of these relationships (Saunders et al., 2009).

Case method is a strategy where a phenomenon is investigated within its real life context and usually involves the use of multiple sources of evidence (Saunders et al., 2009). Yin (2003), perhaps the best-known proponent of the case method in social science, indicates that it is useful when the boundaries between the phenomenon and the context are not obvious.

The case method focuses on an instance of the '*thing'* being investigated. Therefore, case studies are used to take an in depth look at one or even a smaller number of organisations, a department, an information system, or individuals (Oates, 2006; Easterby-Smith et al., 2008). The aim of the case study strategy is to gain rich, detailed insight about the phenomenon and its complex relationships and processes (Oates, 2006). Case studies are therefore usually of interest if one is interested in gaining a rich understanding of the context of research and the underlying process. The case study strategy is particularly useful for answering why, what and how questions (Yin, 2003 and Saunders et al., 2009) and is often used in explanatory and exploratory research (Saunders et al., 2009).

The case study strategy appears to be a more appropriate method for the main research question posed by this study. The research question posed by this study seeks to determine 'how' and this type of question is best suited for the case study strategy. This study also attempts to provide meaning and understanding of the phenomenon in its real life context. It also attempts to understand relationships and underlying processes. If this research started with propositions and the desired outcome was to suggest possible reasons for relationships between variables and to develop models of these relationships, then the survey strategy would be a better choice. As the starting point of this study is not a proposition, the survey strategy is inappropriate.

3.4.3 Case Study Research

A case study is a method of enquiry that is used to investigate a phenomenon within its real-life context, and particularly when the boundaries between phenomenon and context are not clearly evident (Yin, 2003). The case study approach is a research method that stresses in-depth understanding and qualitative analysis. It is considered as

an appropriate research strategy to use when the researcher is asking a "how" or "why" or “what” question about a current set of events in their natural setting (Saunders et al., 2007). Case study research can be used to: (1) provide description, (2) provide explanation (2) test theory, and (3) generate theory (Eisenhardt, 1989; Yin, 2003; Saunders et al., 2009). In other words, case studies are used to gain in-depth understanding of social phenomena in their natural settings, thereby providing insight and understanding. The research questions posed by his study along with the stated objectives suggest that the case study method is ideal for this study. The main research question asks ‘how’; and the objectives require description and explanation and ultimately the generation of theory regarding the impact of consultants.

Although case study research is not generalisable to large populations it can be used to generalise to theoretical propositions (analytic generalisations) (Yin, 2003). Case studies are also particularly appropriate for studying phenomena that are not supported by a strong theoretical base (Bensabat et al., 1987). In some situations case study researchers will have very little prior knowledge of what the variables of interest will be and how they will be measured. In other instances, the researchers, prior to conducting the case studies, identify critical variables and conceptual research frameworks (Miles and Huberman, 1984).

Case studies can involve a number of different data collection strategies. Data can be collected from either single or multiple cases, and have numerous levels of data analysis (Yin, 2003). Typically, data are collected from a small number of organisations through methods such as interviews, observations, archives and questionnaires.

Researchers have effectively used the case study method in information systems. Bensabat et al. (1987) state that the case study method is appropriate for IS research and highlights three factors to support this view:

1. Case studies enable researchers to study IS in a natural setting, to learn about the technologies and generate theories from practice. This is in line with one of the main objectives of this study as this research seeks to develop theory regarding the impact of consultants on SMEs.
2. Through case studies, researchers gain a better understanding of the nature and complexity of the processes taking place in organisations. This lends itself to another objective of this study, which is to explain how consultants impact SMEs
3. The field of IS changes rapidly therefore valuable insights into new areas of investigation can be gained through the use of case study research.

Oates (2006) concluded that a case study approach is particularly suited to research into the development, implementation and on-going use of information systems. This is because the case study approach allows researchers to study all the factors and their inter-relationships. This also suggests that the case study approach is ideally suited to investigate the implementation process as carried out or managed by IS consultants. Therefore, based on all that has been presented above, regarding the case study method, the research questions and objectives of this study, the case study method is chosen as the most appropriate method for this enquiry.

3.5 The Case Study Design

This research has three main objectives as described in Section 3.1 of this chapter. The aims of these objectives suggest that a phased approach to collecting data would be most beneficial since it allows specific data to be collected in different phases to address the different objectives of this study.

The first objective of this study is to determine the role of consultants and how the role played by consultants affects or influences SMEs. The aim of this objective can be realised through exploration, therefore an exploratory design would be most ideal approach. Yin (2003) notes that the case study strategy can be effectively used to carry out exploration. To address the first objective of this study, the first phase is exploratory in nature. To gain an understanding of how consultants affect or influence SMEs inductive reasoning is employed to identify the emergent themes.

The aims of Objective 2 and Objective 3 are to determine the impact of consultants on knowledge and IS abilities respectively. This suggests two phases would be necessary to fully address these objectives. It would be necessary to discover the knowledge and abilities that are affected by consultants. To achieve this would require a design that incorporates exploration and description. Yin (2003) also notes that case studies may be used for descriptive purposes. Consequently, the second phase of this study involves a case study design involving exploration and description. To fully meet the objectives would require a research design that allows for confirmation of the findings inductively reasoned in the previous phases. Yin (2003) also points out that case study research may be used for such purposes; therefore the third phase involves a confirmatory study.

Three phases of data collection is proposed for this study. With the completion of each phase, the research will move closer to satisfying the stated objectives of the study and provide an answer to the main research question. In designing the various data collection phases this research relies heavily on the best-practice advice and suggestions of Bensabat et al. (1987), Eisenhardt (1989) and (Yin (2003). In the following section the detailed design of the overall study including the various stages and phases of data collection are presented.

3.5.1 Stages in the Design of the Study

The conclusions of this study are ultimately about consultants (individuals) and organisations (SMEs). For the purpose of this study SMEs are defined according to the number of employees. Firms are considered SMEs if they have fewer than 50 full-time employees. The choice of 50 employees for SMEs is influenced by: (i) The definition of SMEs used by the Government of New Zealand which defines SMEs as having less than 50 employees and (ii) As pointed out by Hunter (2005) and Hunter et al. (2005), a researcher should choose to define SMEs in a way that best suits the purposes of his/her study. The definition of SMEs is a point of departure for this study in relation to prior research. The majority of the research on consultants and SMEs focuses on organisations with more than 100 employees (Thong, 2001; Howcroft and Light, 2008; Carey, 2008). It is the position of this study that as a firm grows, it becomes more structured and organised. Prior research highlights difficulties hiring dedicated IT staff and organisations with IT departments (e.g., Thong, 2001). However, in places where SMEs tend to be much smaller, like New Zealand, a vast majority of the organisations do not have dedicated IT staff furthermore IT departments because SMEs are defined in New Zealand as organisations employing fewer than 50 employees. When compared to some of the definitions used in prior research: SMEs have been defined as having up to

500 employees (Caldiera and Ward, 2003), and small businesses as having up to 100 employees (Thong, 2001).

A consultant, for the purposes of this study, is defined as an individual or business that is marketed as a consultant (confirmed by their website) and is actively engaged in implementing IT/IS projects in SMEs. This study focuses on the implementation of IS projects in SMEs. SMEs are likely to make use of various kinds of information systems, for example, accounting information systems (AIS), customer relationship management systems (CRMs) and enterprise resource planning systems (ERPs). Accounting information systems or packages were chosen as the information system of interest in this study. This choice was motivated by the fact that accounting systems are the predominant software used by SMEs. While some SMEs might use ERPs and others might use CRMs, most SMEs would make use of accounting software. By accounting software this study refers to computerised accounting software used to gather, analyse and present financial data. The types of accounting software packages considered by this study are off-the-shelf packages that may be purchased by SMEs. This choice of IS offers the added advantage of finding participant SMEs and allows for conclusions to be generalised across all types of SMEs.

The design of the study includes consultants and SMEs. An SME is considered a representative case if the firm has implemented, or was in the process of implementing, an accounting system with the assistance of a consultant. Consultants are considered representative cases (case studies of individuals) if they primarily work with, and have previously implemented accounting systems in SMEs. Participants are recruited based on convenience; if the participants met the basic criteria outlined above and were willing to partake then they were included in the study.

The overall design of this study is described using the four stages outlined below:

Stage 1: Review of literature

Stage 2: Develop initial interview protocol

Stage 3: Collect and analyse data

- Stage 3.1: Conduct Phase one data collection and analysis
  - Part A: Conduct pilot study
  - Part B: Conduct Phase one data collection
- Stage 3.2: Conduct Phase two data collection and analysis
- Stage 3.3: Conduct Phase three data collection and analysis

Stage 4: Develop the theoretical model/contribution

Stage 1: Literature review

The study began with a review of the literature to gain an understanding of the area of interest, and to determine what was studied before. The review of existing literature was used to discover gaps related to the impact of consultants. This stage is covered in Chapter 2.

Stage 2: Develop initial interview protocol

A case study protocol is a data collection instrument intended to increase the reliability of case study research and is necessary when a multiple case design is being used (Yin, 2003). When using multiple case studies, cross-case comparisons are usually made and this requires some standardisation of instruments for comparative analysis (Lee, 1989).

The initial case study protocols consisted of semi-structured questions and were used for the pilot study. The questions were designed using information gathered from the

review of literature and consisted of a list of questions related to the key themes of this research. For example, the protocol examines areas such as consultant engagement, the role of consultants, the effectiveness of consultants and project success.

The following general questions were included in the interview protocol:

1. Company background information

   This looks at the type of industry sector, age of the business, number of employees and annual turnover.

2. Consultant engagement process

   This explores the reasons for engaging the consultant, the type of consultant engaged, the process surrounding the engagement including problems or issues

3. The role of the consultant

   This looks at the services provided by the consultant, the perceived role of consultants and the interviewee experience working with the consultant during the implementation project.

4. Consultant Effectiveness

   This explores whether the consultant was effective and what areas of the project SMEs used to assess the performance of the consultant.

5. Project Success

   This looks at the planning and timeline of the project, including the cost and budget of the project, as well as the scope and SMEs perception of the success of the project.

6. Satisfaction

   This examines the satisfaction of SMEs with the project and with the services and performance of the consultant.

There are two protocols, which serve for SMEs and for consultants respectively. They serve as interview guides for data collection and are used to ensure that matching information is collected at the various sites. They also help to facilitate cross-case analysis of the case data. The interview protocols are provided in Appendix B.

Stage 3: Collect and analyse data

Before the main data collection effort takes place a pilot study is conducted. The purpose of the pilot study is to refine data collection plans and to provide insight into the issues being studied. This initial exploration is much broader and less focussed than the data collection phases to follow. The pilot study involves one representative SME.

The main data collection effort occurs in three phases. Data collection in Phase-one and Phase-two involved multiple cases; participants are added until data is saturated. According to Eisenhardt (1989), multiple case designs are appropriate when the intent of the research is description, theory testing, or theory building. The purpose of this study is certainly in agreement with the Eisenhardt's statement.

The following criteria are used to determine the suitability of SMEs for Phase-one and Phase-two data collection:

(i) Implemented an Accounting system within three (3) years prior to this study

(ii) Have fewer than 50 employees

(iii) Used a consultant to assist with the implementation

The suitability of consultants for participation in Phase one and Phase two is based on the following:

(i) Listed as a consultant or providing consultancy services

(ii) Implemented an accounting system in an SME within three (3) years.

In Phase-three a single-case design is utilised. This is a critical case/example of the phenomenon being investigated and is used to confirm the findings from earlier data collection phases. The three data collection phase are further discussed in Section 3.5.2.

Stage 4: Develop the theoretical model and contribution

Based on the results and analysis of data collected in stage three, the final theoretical model and explanation related to the impact of consultants is developed and presented. The findings are compared with prior research in an attempt to provide answers to the questions posed by this study.

3.5.2 Data Collection Phases

3.5.2.1 Phase One

As noted earlier, data collection in Phase-one used a multiple case study design. Cases were added until no new information was gained by adding further cases. Two interview guides were used to investigate the broad themes of interest, one was used with SMEs and the other was used with consultants. The guides consist mainly of semi-structured questions and most of the data are collected from face-to-face interviews. In the case of SMEs, interviews were conducted with either the owner/manager or the individual responsible for the implementation of accounting system. In the case of consultants, face-to-face interviews were conducted with the consultant or consultants responsible for implementing the accounting system at the client SME. The unit of analysis for this phase of data collection was consultants and SMEs. The main aim of this phase was exploration.

All interviews were digitally recorded and transcribed. Interviewees were given a copy of the transcripts to analyse before final acceptance. This ensured that the respondents' comments and perceptions were accurately captured. In addition, other relevant supporting material such as brochures and website related material were used to provide multiple sources of data. Nvivo was used to code and assist with the analysis of collected data. Data analysis included within-case analysis followed by cross-case analysis (Eisenhardt, 1989). Emergent themes, related to the impact of consultants, were used as the inputs to the second phase of data collection.

3.5.2.2 Phase Two

Data collection in Phase-two follows a similar design to Phase-one; however, the results of Phase-one were used to generate the specific research questions and objectives for this phase. The following key steps were observed:

1) Develop interview protocol
2) Collect and analyse data
3) Develop model/propositions

The case study method was also used in phase-two to further explore and explain the emergent themes. Phase-two was therefore exploratory and descriptive in nature. The interview protocol for Phase-two was developed after review of the relevant literature corresponding to the emergent themes.

Following a similar approach to Phase-one, consultants were interviewed until it is determined that data had reached saturation. SME cases were then considered until saturation of data was also reached. Interviews were also digitally recorded and transcribed. Copies of the transcripts were provided to all participants for their feedback

before final acceptance. Data analysis included within-case analysis followed by cross-case analysis (Eisenhardt, 1989).

The results of Phase-two were used to develop propositions regarding the key themes of interest for that phase (knowledge and abilities). This was achieved by comparing and contrasting the findings with existing literature to develop propositions about the impact of IS consultants. These propositions were then tested for confirmation in Phase-three of the study.

3.5.2.3 Phase Three

The third phase of data collection involved an in-depth longitudinal single-case study and examined the implementation of an accounting system at one SME. This phase was confirmatory as it was designed to provide evidence in support of, or to contradict the propositions and explanation developed in the earlier phases of the study. The longitudinal design included three points where data was collected: before the installation of the software; during the installation of the software; and after the project is completed.

Data were mainly collected by face-to-face interviews as in the previous phases. However, in addition to the interviews questionnaires, email communications, project documents, web sites and observation were also used to collect data. The owner/manager and person responsible for the accounting system (administrator) were interviewed as well as the consultant engaged on the project. All interviews were transcribed and copies provided to the participants for their verification.

Table 3.4 provides a summary of the various data collection phases employed in this study.

Characteristic	Pilot	Phase 1	Phase 2	Phase 3
Participants	One SME	Multiple SMEs + Multiple Consultants	Multiple SMEs + Multiple Consultants	One SME with Consultant
Unit of Analysis	Consultants + SMEs	Consultants + SMEs	Consultants + SMEs	Consultants + SMEs
Objectives	Exploration	Exploration	Explanation and Description	Confirmation
Method of analysis		Within case + Cross case	Within case + Cross case	Within case

Table 3.3: Data collection phases

3.6 Limitations of the design of the study

The design described in this chapter is deemed the best way to achieve the objectives of this study and to provide an answer to the research question posed by this study. However, it is noted that the design of the study is based on certain assumptions and there are, as a consequence, limitations inherent to the approach and method described above.

In designing the study, it was assumed that consultants do have an impact on SMEs. Although prior research did not indicate that consultants had an impact on SMEs, it is generally assumed that there would be an impact from consultants. More significantly, the design was based on the notion of the nature of SMEs as lacking in resources and

knowledge (Attewell, 1992; Curran and Blackburn, 2001; Thong, 2003). It was assumed that SMEs still possess such a nature.

Additionally, it was assumed that using KBT and RBT would yield new information and insight into consultant-client interactions. Finally, it was further assumed that there is knowledge transfer from consultant to client during consultant-client interactions (Armbruster, Faber and Barcelona 2002; Dawson 2005; Carey, 2008).

Using the case study strategy presented some limitations to the design of the study as well. One such limitation was the length of time since the implementation project took place in the case organisation. It was decided that implementations should be no older than three years as this fitted with the 2006 reports and statistics from the Ministry of Economic Development in New Zealand (Data collection commenced in 2009).

A second limitation was staff turnover in SMEs. It was possible that the contact person for the consultant during the project would no longer be with the participating organisation. To compensate for this effect, top managers were interviewed. This also related to the convenient recruitment of participant cases, which presents a further limitation. Using convenient cases meant that it would not always be possible to get '*perfect'* representative cases with full access to all the relevant persons and information. A third limitation was the amount of data that the case study method generated. There was too much data to manage in the time available to conduct the study. To overcome this limitation the research was designed around key themes, for example the role that consultants play and the task and duties that they perform. Therefore, not neglecting new or emerging themes and ideas the analysis was guided by the key themes of interest. A fourth limitation of the design is that it likely provided description more than

explanation. In other words, it might be able to describe what happened, but why it happened would be more difficult to determine. To overcome this limitation, the findings of the study were viewed using various theoretical perspectives from the research literature. These theories were used to support the findings of the cases and provide possible explanations of the event described.

3.7 Chapter Summary

In this chapter the approach taken to answering the research question and the objectives of the study were outlined. The philosophical stance of the researcher was introduced and discussed. A pragmatic stance was adopted for the study.

The methods employed to generate data were also presented. The case study strategy was chosen as best suited for answering the research questions and meeting the objectives of the study. The overall design included exploratory, descriptive and confirmatory cases. Data collection was highlighted and was scheduled over three phases, which were each designed to address particular objectives of the study. The first phase or round of data collection was used to explore the phenomenon and discover various relevant themes. The second phase or round of data collection was used to build on the themes discovered in the previous phase. The themes were further investigated to develop propositions that were then tested in the third and final phase of data collection.

In the following chapter the results of the first phase of data collection is presented.

4 Phase One Data Collection and Results

4.1 Introduction

This chapter presents the results of the first phase of data collection, which is presented in two parts. The first part presents the results of the pilot study and discusses what was learned from the study. The second part discusses the results of the main data collection effort.

This data collection phase was exploratory in nature and consisted of interviews with four SMEs and three consultants. The purpose of this phase was to examine the broader issue of the role and impact of IS consultants by seeking to identify any emerging themes. The emerging themes are presented and discussed in line with existing literature. The emergent themes were further used as the foundation for the second phase of data collection.

The main method of data collection used in this phase was face-to-face interviews. Software brochures, company documents and Website material supplemented the interviews. Data collected in this phase was analysed using Nvivo; software developed to assist with the handling of qualitative data. Analysis of the data was done following the advice of Eisenhardt (1989) and Yin (2003); patterns in the data were investigated using within-case and cross-case analysis.

Chapter 4 includes the following sections:

Part A

4.2 Pilot Study

Part B

4.2 Pilot Study

The pilot study was conducted with one SME. This was done to explore the area of interest of the study, which was the use of consultants to implement IS in SMEs. The pilot study was conducted to test and refine the interview protocol used for this phase.

The SME involved in the pilot study was a manufacturing firm with eight full-time and three part-time employees. The pilot SME had recently completed several IS related projects. The company had implemented an e-commerce site, a production system and an accounting system. The pilot SME had been in operation for 11 years at the time of the interview and the annual turnover was approximately $500, 000 New Zealand dollars. The company had a customer base of approximately 50 clients. The interviewee was the director of the company. The director admitted that she was not very competent with computers and joked that it was her daughter who has taught her to use a mouse.

In May 2008 an e-Commerce system was implemented with the help of a Pilot Consultancy (a pseudonym for the engaged consulting company). The Pilot Consultancy, which also specialised in website design, was engaged to manage the design of the system. The pilot SME already had a website however the company wanted to start retailing directly to customers. The director revealed,

"I realised with the amount of people coming in here before we retailed, how essential it was to start retailing direct because the margins and people wanting to buy off us, so and also we had a lot of expats overseas saying we want to buy online, when you going to go online? So that was the next step really. It was demand really."

The Pilot Consultancy completely managed the implementation process. The Managing Director of the pilot firm worked with the design company to come up with the look and feel of the website. The Managing Director along with another employee was the one behind the design of the site (in terms of look and feel). The process was not all smooth and the Manager Director recalled that she did become "*a little frustrated*" at times:

"What I think may be the problem is they think on a different level and they don't realise, they so involved with, with their technical things, that they don't actually apply it to the people who are using it. That knowledge. There is a lack of communication there. That's what I feel. And I think it's maybe typical of IT people..."

The other area of frustration came with the timeline and delivery or '*go live*' for the site. The entire process took about four months but the '*go live*' did not occur at the proposed time. Despite this, the e-Commerce site met the needs of the company and the Managing Director stated that having the design company involved was very helpful.

This SME had also implemented a manufacturing/production system called Gerber. At the time of the interview the firm had been using Gerber for six weeks. The Managing Director was introduced to the Gerber system by a salesperson. The Gerber system was needed in order to increase the range of the company's products and was needed

"desperately". No one in the pilot company had any knowledge of how to utilise the Gerber system and they resorted to the manual for guidance. The task to gain knowledge of the Gerber system was left up to another employee. The Managing Director noted that they also received assistance from a friend who was familiar with a production system similar to Gerber's. There was no formal training, but the pilot SME was supported by the retailing organisation and from an international Gerber expert.

According to the Managing Director, it took about one and a half to two years to get the Gerber system installed and operational from the initial contact with the sales company to the time the system became operational. It took about four to six months to actually put the system in place on-site at the pilot SME. Then another four months passed with the system installed but not being used. Despite this inconvenience the Managing Director still felt that the implementation of the Gerber system was a success. She replied, *"Yes and a lot more that we don't know about."*

The pilot SME implemented QuickBooks, the accounting software, to support the introduction of the e-Commerce site. The software was implemented by the pilot SME's accountant and was hailed as a success by the Managing Director.

4.2.1 What was learned from the pilot study?

From the analysis of the pilot case some changes and modifications were made to the interview protocol as well as the research design. Several of the questions were modified to make them clearer for the persons being interviewed. Attempts were made to use as little jargon as possible in the wording of the questions. For example, terms like '*consultant-effective*' and '*IS Success*' were not used when asking about these themes. This was done since the knowledge of persons in SMEs, in terms of IS, could

vary from little knowledge to substantial knowledge.

The ordering of some of the questions in the interview protocol was also changed. This was done to improve the flow of the interview and create consistency for the interviewees. The questions were also clearly grouped into sections examining specific areas of interest. For example, there was a section on IS success and all questions that related to IS success were covered in that section.

It was also noted that the knowledge and skills of the owners and managers of SMEs encountered could vary widely. In the case of the pilot SME the IT/IS expertise was very low, therefore future interviews had to take this into consideration. In conducting the pilot study the focus was broad and no particular information system was chosen at this stage. From the pilot study it was noted that a variety of systems are used by SMEs depending on the nature of the business. Different manufacturing companies use different production systems. Also, non-manufacturing SMEs have no need for production systems. In order to be able to apply the study to a wider range of SMEs a common information system would be best. As mentioned before, it was felt that accounting systems would be appropriate since the types of packages used would be common across all SMEs. Additionally, since the focus is on the process of implementing the system and not the system itself, the choice to focus on accounting systems would not limit the ability to generalise findings to other IS.

The pilot study also confirmed that SMEs still rely heavily on external support and advice from experts like consultants to implement and effectively use IT/IS systems. In addition, the pilot study also revealed that SMEs also get assistance from other sources like salespersons and colleagues. Interestingly, the pilot case also revealed that a lack of

knowledge and skills might still be prevalent among SMEs. This strengthened the belief that viewing data using knowledge-based theory (KBT) and resource-based (RBT) was an appropriate choice.

4.3 Phase One Main Data Collection

This section presents the results of the second part of the first phase of data collection. As previously noted this phase of the study was mainly exploratory and followed a multiple-case design. The revised interview protocol served as the interview guide for this phase of data collection. The IS implementation projects considered for the rest of the study involved the implementation of accounting information systems. Representative cases for SMEs and consultants were added to the study until the analysis suggests that nothing new would be gained by pursuing more cases.

The small and medium-sized enterprises (SMEs) cases are summarised in Table 4.1 and Table 4.2 summarises the reasons these SMEs initiated the projects. Three of the SMEs interviewed were manufacturing companies and one was a services oriented company. The number of employees ranged from eleven in the smallest company to thirty in the largest company. The accounting systems implemented by the SMEs included Mind Your Own Business (MYOB), QuickBooks, Infusion and Accredo. MYOB and QuickBooks may be considered the most basic of the systems. Infusion and Accredo may be considered advanced accounting systems. The mix of accounting systems in the study highlights the range of accounting systems used by SMEs. The consultants that work with SMEs to implement the accounting systems were classified into two groups: independent-resellers and accountants. Independent-reseller consultants sell accounting packages to clients but remain independent of the vendors. Accountants are accountants by profession but also provide consultancy services to their clients, such as the implementation of accounting packages. Only one of the four SMEs interviewed had an implementation project that was deemed unsuccessful by the organisation.

Case	No. Of Employees	Sector	Type of Consultant Employed	Project Outcome	AIS Implemented	Interviewee
Southern Packaging Manufacturing	30	Manufacturing	Independent-reseller	Successful	Accredo	Managing Director
The Arthur Group	17	Services	Accountant	Successful	MYOB	Practice Manager
Ali Manufacturing	16	Manufacturing	Independent-reseller	Not successful	Infusion	Financial Controller
Dumani	11	Manufacturing	Accountant	Successful	QuickBooks	Owner-Manager

Table 4.1: Summary of SMEs interviewed

SME	Reason for undertaking the project	Task and duties of the consultant
Southern Packaging Manufacturing	Upgrade/update existing accounting system Create a link to their offices in another city	Analysis of the problem Recommended the software and hardware Installed the system Configured the software Customised the software Trained the staff Provided on-going support
The Arthur Group	To have in-house control of the company's accounting function Reduce costs associated with outsourcing the accounting function	Recommended the software Installed the software Configured the software Did monthly accounting
Ali Manufacturing	Improve operations by removing duplicate processes Create a link between order processing and accounting	Installed the software Configured the software Customised the software
Dumani	To facilitate the retailing function of the business	Recommended the software Installed the software Trained the staff

Table 4.2: The reasons why each SME initiated the project and the various tasks carried out by each consultant.

4.3.1 SME Cases

4.3.1.1 Southern Packaging Manufacturing (SPM)

Southern Packing Manufacturing (SPM) was a manufacturing firm with thirty full-time employees. This company implemented their accounting system with the assistance of a consultant over a three-month period. The Managing Director considered the implementation a success and noted that, "(*the project was successful) because it's doing everything I imagined it would, plus more*." The Managing Director was also very satisfied with the outcome of the project and the work of the consultant (see Table 4.3).

The Managing Director of SPM felt that a consultant had to conform to the business and try to understand the SME: *"Well, they (consultants) got to conform to whatever the manufacturing process is. They got to change to whatever they (SMEs) are selling."* He also added that consultants needed to, *"Try to understand what we are doing...."*

Southern Packaging initiated the project to implement Accredo because they wanted to update their existing accounting system and also to create a link with one of the company's other offices. The company recognised that they needed the assistance of an expert because they did not clearly understand what they wanted in an accounting system. Staff at Southern Packaging lacked the required knowledge to move forward with the project. The Managing Director noted, *".... We use an external consultant when we don't know what we are doing."* He further felt that a consultant was effective when the implementation process was '*problem free*'. This was expressed by the Managing Director in statements such as, *"so there were no hiccups"* and *"well the simple way the whole process was implemented... no disruptions, you know and we were able to carry on working; our production side."*

The office manager at Southern Packaging was the one responsible for the project. She sought advice from the company's accountant concerning what was needed. The accountant recommended the consultant that Southern Packaging eventually engaged for the project. Unfortunately, at the time of the interview the office manager no longer worked for Southern Packaging.

From Table 4.2 it can be seen that the consultant carried out a variety of tasks. The consultant initially analysed the problem and provided several recommendations to Southern Packaging on the software system to use, as well as the corresponding hardware and network infrastructure that would be needed. The consultant did not supply or install the hardware. Next, the consultant installed, configured and customised the system to meet the needs of Southern Packaging. Staff members were trained on the system and as the Managing Director of Southern Packaging noted, it was a success. The consulting company was available after the completion of the project to provide support to Southern Packaging.

Table 4.3 below shows that the consultant by carrying out particular tasks and duties compensated for a lack of IS skills within the SME. In the case of Southern Packaging the consultant affected the nature of the organisation by compensating for IS knowledge and IS skills including problem-solving skills and IS technical skills.

Tasks & duties performed by consultant	Consultant compensated for SME's lack of:
Analysis of the Problem	Problem solving skills
Recommended the software and hardware	IS knowledge and skills
Installed the system	IS technical skills
Configured the software	IS technical skills
Customised the software	IS technical skills
Trained the staff	IS knowledge and skills
Provided on-going support	IS technical skills

Table 4.3: Task and duties carried out by the consultant engaged by Southern Packaging.

4.3.1.2 The Arthur Group (TAG)

The Arthur Group is a company in the services sector with seventeen full-time employees. The implementation of the accounting software in this company took three months and was also considered a success. The interviewee, who was CEO as well as the 'Practice Manager' noted that for small businesses IS implementations came at a *"substantial cost"*, especially when a consultant was needed. As a result small businesses had to ensure that any implemented IS was successful. The manager stated, "*In reality as long as it (the IS) is working, it's successful.*" Despite expressing that the project was a success, the manager was not totally satisfied with the project and the consultant (see Table 4.7). One of the keys aims of the project was to enable The Arthur Group to have in-house control of their accounting function. In addition, they were hoping to reduce associated costs by managing the function in-house. After implementing the system, the company was still dependent on outside expertise to manage their accounting function although the system was now in-house. This situation led to the company being somewhat unhappy and dissatisfied with the project in the long term.

The Arthur Group engaged the services of a consultant for the project because they,

"...had no accounting experience, and there were no accounting expertise within the firm." The SME therefore lacked expertise, that is, skills and knowledge and turned to an external consultant for assistance. In this instance, they opted to use their accountant to carry out the implementation. The initial suggestion to embark on the project was made by the firm's accountant. The accountant suggested that The Arthur Group implement MYOB and after some investigation, the company agreed. The accountant further suggested to TAG that the company could do the implementation themselves, have them (accountants) implement it or they could engage another consultant to do the implementation. TAG chose the second option and had the accountants proceeded with the implementation. This choice was mainly on the basis that the company already had a relationship with the accountant. Table 4.4 below shows that the consultant carried out four major tasks and as a result compensated for IS knowledge, IS skills (including IS technical skills) and accounting expertise (skills and knowledge).

Tasks & duties performed by consultant	**Consultant compensated for:**
Recommended the software	IS knowledge and skills
Installed the software	IS technical skills
Configured the software	IS technical skills
Did monthly accounting	Accounting expertise (skills and knowledge)

Table 4.4: Tasks and duties carried out by the consultant engaged by The Arthur Group.

When asked about the role of consultants, the Practice Manager stated:

> *"The role of a consultant: A consultant should be someone who comes in with a higher degree of knowledge than you've got to be able to input whatever system it is you are putting in; cost effectively, time effectively and with minimum disruption to the business."*

The Practice Manager also felt that if the consultant was able to complete the project on time, on budget and had *"effective communication"*, then the consultant was deemed effective. It was also noted that the appropriateness of the consultant's recommendation and whether the software worked, were important criteria for assessing the consultant. These ideas are captured in statements like, *"At an implementation stage (referring to the consultant), bringing the project in on time and on budget..."* and again referring to the consultant, *"...at least have effective communication..."* The Practice Manager concluded, *"It's all about communication."* The Practice Manager also felt that the consultant they engaged was effective in implementing the accounting system.

4.3.1.3 Ali Manufacturing (AM)

Ali Manufacturing was a manufacturing firm with sixteen full-time employees. The company initially embarked on the project in order to improve their operations by eliminating redundancy in processing and also to create a link between the accounting process and the orders process. The company needed the assistance of a consultant to, *"...get to the next level."* This SME had not completed the implementation of the accounting software, which had been on going for two and half years. Overall, the company felt that the project was not successful. The Financial Controller noted, *"So I feel that the current project hasn't been successful because what we've wanted has kept changing..."* This SME was also not satisfied with the project and the consultant noting, in relation to the consultant, *"I guess ineffective on that point because although we've been busy, they (the consultant) haven't been on our backs."* The Financial Controller felt that for the consultant to be effective he/she had to be able to keep the project running. In addition, the performance of the consultant was assessed in terms of the consultant's ability to communicate effectively with the client. *"It's communication, I*

think the communication relationship. It's like any relationship, if the communication is there, even when things are bad."

AM did not follow a formal procedure to engage external assistance. The consultant was engaged from either a recommendation or a flyer (the financial controller could not remember which). The company contacted the consultant and had several meetings detailing what they wanted to achieve. The consulting company said they could deliver and was engaged by AM to execute the project.

The consulting company in this case installed, configured and customised the software. It is noted that the list of tasks and duties may be less because this project was not completed. Nonetheless having carried out the listed tasks the consultant may still be considered as compensating for IS technical skills (Table 4.5).

Tasks & duties performed by consultant	**Consultant compensated for:**
Installed the software	IS technical skills
Configured the software	IS technical skills
Customised the software	IS technical skills

Table 4.5: Tasks and duties carried out by the consultant engaged by Ali Manufacturing.

The financial controller also noted that there was a lack of IT/IS skills in the company and indicated that most of the skills that he had acquired were *'self-taught'*. This shows that although the company had a good idea what they wanted to achieve it was still necessary to use a consultant to assist as they lacked the necessary skills to proceed on their own. It was felt that the role of the consultant was to assist them in achieving that *"next level"*. The financial controller commented:

"In this context, basically coming and looking at your business, seeing how

it differs from every other business and understanding that enough to be able to implement what we're wanting without too much ado really."

4.3.1.4 Dumani

Dumani was a manufacturing firm with eight full-time and three part-time employees. This company was the smallest of the SMEs interviewed. Dumani implemented the new system as the business wanted to retail their product online. Their existing version of MYOB was not able to handle the retailing side of the business and so the company needed a new system. The Managing Director turned to their accountant for advice and technical assistance to implement the system. Although Dumani did not go through a search process for a consultant, the company implemented the system over a two-week period with the assistance of their accountant. The accountant in this case was engaged as the consultant. This is a common trend in the industry; many accountants offer IS consulting services to their clients (see also the case of Ali Manufacturing). The Managing Director asked the accountant for advice and the accountant recommended QuickBooks as the solution. Once Dumani acquired the system, the accountant installed the software and ensured that staff members were able to use it. The consultant therefore compensated for IS knowledge and IS skills including IS technical skills (Table 4.6).

Overall the implementation was a success. The managing director noted, when asked about the success of the implementation, *"Well I think it has done what we need to have done..."* The company was also satisfied with the system and the consultant (see Table 4.7). The Managing Director felt that a consultant was effective when the recommended software suited the organisation, the users were able to utilise the system and the system

provided financial benefits to the organisation. The Managing Director commented,

> *"That you can apply what they (consultants) trying to tell you... That it (the system) applies to the business and it improves... there has to be an economical improvement with what you spend and what you get."*

Tasks & duties performed by consultant	**Consultant compensated for:**
Recommended the software	IS knowledge and skills
Installed the software	IS technical skills
Trained the staff	IS knowledge and skills

Table 4.6: Tasks and duties carried out by the consultant engaged by Dumani.

The Managing Director felt that when a business turned to a consultant, it was the consultant's role to provide technical assistance and advice on software systems. This is expressed in the following statements, *"...the role is definitely technically keeping up-to-date with what's available as far as the systems...."* And, *"...they (consultants) need to do it themselves with the communication to the business, what's available, where you should be going."*

SME	**Satisfaction with the Consultant**	**Satisfaction with the Information System**
SPM	Very satisfied	Very Satisfied
TAG	Dissatisfied	Dissatisfied
AM	Dissatisfied	Satisfied
Dumani	Satisfied	Satisfied

Table 4.7: SMEs' satisfaction with their consultant and the implemented accounting package.

4.3.2 Analysis of SME results

In this section the results of cross-case analysis of the interviews conducted with the SMEs are presented. The following key areas are explored:

1. The reasons why SMEs engage consultants.
2. Consultants' tasks and duties.
3. Perceived role of consultants.
4. Consultant effectiveness.
5. Implementation success.

The reasons why SMEs engage consultants

Two major reasons why SMEs in the study engaged consultants emerged from the interviews. Both reasons relate to the '*nature*' of SMEs, who suffer from a state of resource poverty and lack knowledge (Welsh and White, 1981 and Attewell, 1992). The main reasons why the SMEs in the study turned to the professional services of consultants were: The SMEs lack of IS skills and lack of IS knowledge (Table 4.8). The results in Table 4.8 show that for each case the reason why the SME engaged the consultant was related to the need of the organisation to have access to IS knowledge and IS skills (supplied by consultants).

SME Cases	Reasons for Consultant	Indicates a lack of (IS knowledge[1]):	Indicates a lack of (IS skills[2]):
SPM	Did not really understand what they wanted. Did not know what they were doing	Know-what	*Implies* Know-how
TAG	There was no accounting experience/expertise within the firm. (No IS skills)	Know-what	Know-how
AM	Could not implement the goals of the company on their own. Insufficient IT/IS expertise	Know-what	Know-how
Dumani	For advice on software solution and assistance to install the software	Know-what	Know-how

Table 4.8: The reasons why SMES engage consultants.

[1] IS knowledge refers to knowing what to do and what software solution to purchase
[2] IS Skills refer to abilities (knowing how to do

SPM and TAG exemplify the premise that SMEs lack IS knowledge and IS skills or expertise. Southern Packaging indicated that they needed a consultant because they did not really understand what they wanted. The Managing Director stated, *"... because we did not really understand what we wanted... we use an external consultant when we don't know what we are doing."* The Practice Manager for TAG stated that the reason they needed the consultant was because, *"... they had no accounting experience, and there were no accounting expertise within the firm."* These two cases highlight the lack of IS skills and IS knowledge or expertise as well as the lack of accounting expertise that forces SMEs to seek expert assistance.

Dumani indicated that they turned to their accountant for a recommendation on the best accounting software and for assistance to install the software. This may be viewed as an indication that the company lacked the IS knowledge necessary to choose a solution and they lacked the necessary technical skills to install the software as well. Based on such reasoning this case supports the claim that SMEs engage consultants because they need experts with skills and knowledge that they do not possess. A similar approach is taken in the case of AM. This SME had an idea of what it wanted to achieve by implementing a software solution but needed the consultant to suggest how it could be implemented and then to actually implement it. The financial controller admitted that the level of IT/IS technical skills in the organisation were low. Therefore, requiring the assistance of a consultant to implement the system in this case may indicate a lack of skills and knowledge (or expertise[3]) on the part of AM.

In synthesising what has been learned from the SME cases so far, with reference to the reasons why each organisation engaged a consultant, it is revealed that they did so

[3] The term expertise is used to capture IS knowledge and IS skills. It refers to knowing what and how at the same time

because of a lack of knowledge and or skills. This is presented in Table 4.9, which outlines a variety of reasons why each SME engaged a consultant. From the first column in Table 4.9 areas related to know-how, know-what and skills or ability are noted.

Knowledge and skills lacked by SMEs	**SPM**	**TAG**	**AM**	**Dumani**
Know what is needed regarding the accounting function	x	-	-	x
Know what accounting software is needed	x	x	x	x
Accounting expertise (knowledge and skills)	-	x	x	x
Know how to implement accounting goals	-		x	x
Know how to install accounting software	x	x	x	x

Table 4.9: The lack of knowledge and skilled that forced SMEs to engage consultants

Two major reasons or explanations for why SMEs engaged consultants emerged from the interviews. SMEs engage consultants because they: (1) Lack IS knowledge, and (2) Lack IS skills (Table 4.10). These findings are consistent with previous research (Thong 2001). Attewell (1991) suggested that small enterprises lacked knowledge and skills and hence a '*knowledge barrier'* existed preventing the organisation from implementing IS on its own. He suggested that consultants were therefore needed to overcome the '*knowledge barrier'* enabling small businesses to implement IS successfully. From the interviews it may be concluded that SMEs lack the necessary expertise to implement IS successfully on their own. Similarly, knowledge is also a resource and Welsh and White (1981) suggested that small business lacked resources, a state the authors called '*resource poverty*'.

Reasons why SMEs engage consultants:
i. SMEs lack IS knowledge where IS knowledge equates to knowing what to do about issues or problems and knowing what software solution to adopt.
ii. SMEs lack IS skills where IS skills refer to abilities and include problem solving skills and technical skills

Table 4.10: SMEs' perspective - the reasons why SMEs engage consultants.

4.3.2.1 The tasks and duties of consultants

This section presents the results of the interviews regarding the tasks and duties performed by consultants. It is noted that there are different stages in the overall life cycle of an implementation project. The consultant is likely to assist during various phases of the project. Using the systems development lifecycle (SDLC) there are five phases where the consultant may play a part, the planning phase, the analysis phase, the design phase, the implementation phase and the support phase (Satzinger, Jackson, and Burd, 2008).

Table 4.11 captures, from an SME's perspective, the tasks that consultants perform. Table 4.12 list these tasks from the most common to the least common as they occur in the interviews. The most common task carried out by consultants is the installation of the software; as expected this was done in all of the cases. The next tasks carried out by consultants are analysis and recommendations, also software configuration, and then end-user training and firm-specific software customisation. In two of the cases end-user training was not done. In the case of AM, this may be due to the fact that the project was not completed. Training tends to occur once the software is installed and working. In the case of TAG this may be due to the fact that the accounting function remained with the consultants after the implementation. Although the company had the software

installed there was no in-house skills to utilise the system. Software customisation is usually provided on the basis of need if the implementing SME requires the software to be customised. In two of the cases, TAG and Dumani, customisation was not a requirement. Also listed in Table 4.12 is on-going support. On-going technical support is provided on a needs basis as required by the SME. Only one case, SPM, required the consultant to provide this service. In the case of the on-going accounting function (Table 4.11), this is specific to TAG and directly related to the accounting function remaining outside of the organisation.

TAG had the accounting function performed by their accountants. When the project was undertaken the company chose to use their accountants to implement the system. TAG also did not have any staff with accounting expertise. The lack of skilled staff combined with using their accountants probably led to the situation where the accounting function effectively remained with the accountants. It is for this reason that the on-going accounting function is omitted from Table 4.12 and not included in any further analysis of the results.

SMEs	Duties and tasks performed by consultant	SDLC Phase
SPM	Analysis & Recommendations	Analysis & Design
	Installation the software	Implementation
	Configuration of the software	Implementation
	Customisation of the software	Implementation
	Training of users	Implementation
	On-going technical support	Support
TAG	Analysis & Recommendations	Analysis & Design
	Installation of the software	Implementation
	Configuration of the software	Implementation
	On-going accounting function	Support
AM	Installation of the software	Implementation
	Configuration of the software	Implementation
	Customisation of the software	Implementation
Dumani	Analysis & Recommendations	Implementation
	Installation of the software	Implementation
	Training of users	Implementation

Table 4.11: Tasks and duties performed by consultants

Duties and Tasks Carried out by Consultants	SDLC Phase
Installation of the software	Implementation
Configuration of the software	Implementation
Analysis & Recommendations	Analysis & Design
Training of users	Implementation
Customisation of the software	Implementation
On-going technical support	Support

Table 4.12: Task and duties performed by consultants sorted from most common to least common

In Table 4.12 six major tasks/duties of consultants are presented from the analysis of the data. In Table 4.13 the tasks and duties are presented showing the tasks that were performed at each of the SMEs.

Duties and Tasks Carried out by Consultants	SPM	TAG	AM	Dumani
Installation of the software	x	x	x	x
Configuration of the software	x	x	x	x
Analysis and Recommendations	x	x	x	x
Training of users	x	-	-	x
Customisation of the software	-	-	-	-
On-going technical support	x	-	-	-

Table 4.13: Tasks carried out by consultants at the SMEs

4.3.2.2 SMEs' perceptions of the role of consultants

This study seeks to gather information on what the implementing SMEs identify as the role of consultants. It is believed that understanding the perceptions of SMEs on the role of consultants will shed light on the reasons why SMEs turn to consultants. It may also provide a way of understanding what SMEs expect from IS consultants. Table 4.14 shows what each interviewee perceived as the role of consultants.

SMEs	Perceived Role of Consultants
SPM	"Well, they got to conform to whatever the manufacturing process is. They got to change to whatever they selling. Which they did do. Try to understand what we are doing and they do understand it because they have done it in other places so I don't think we were anything special. I think they have done it all before, before they came here."
TAG	"The role of a consultant, a consultant should be someone who comes in with a higher degree of knowledge than you've got, to be able to input whatever system it is you're putting in cost effectively, time effectively and with minimum disruption to the business."
AM	"In this context basically, coming and looking at your business, seeing how it differs from every other business and understanding that enough to be able to implement what we're wanting without too much ado really."
Dumani	"Well the role is definitely technically keeping up-to-date with what's available as far as the systems, software systems and improving on them. And, or either they need to employ, they needs to be a go between or they need to do it themselves with the communication to the business, what's available, where you should be going. I mean we have no idea of the IT on-line, where we, you know, what way we could move next, next step."

Table 4.14: SMEs' perception of the role of consultants

Table 4.14 is summarised in Table 4.15. From Table 4.15 the main perceived role(s) of

consultants include: installing the accounting software and understanding the client's business. The consultant's role involves him/her gaining an understanding of the SME in terms of what it does and how it operates. In addition, the interviewees felt that consultants should carry out an analysis of the business problem and advise SMEs as part of their role. It is worth noting that some of the SMEs did not indicate that '*Understand the business*' and '*Analysis of the situation*' were roles of the consultant. This may indicate the lack of knowledge prevalent in SMEs and may also explain some of the results of the projects. For example, The Arthur Group were not happy as the main aim of in-house control of the accounting function was not achieved; this SME was one that did not indicate that '*Understand the business*' and '*Analysis of the situation*' were roles of the consultant.

Perceived Role of the Consultant	SPM	TAG	AM	Dumani
Installation of the system		**x**	**x**	
Understand the business	**x**		**x**	
Installation of the system - on time		**x**		
Installation of the system - on budget		**x**		
Analysis of the situation			**x**	
Advise the SME				**x**

Table 4.15: Summary of SMEs' perception of the role of consultants.

There is overlap between the main perceived role of consultants (Table 4.15) and the main duties presented earlier in Table 4.13. One can contend that SMEs see the role of consultants more in line with the tasks that consultants perform. The two tables indicate the following: software installation, consultants conducting analysis and providing recommendations to SMEs.

4.3.2.3 Consultant Effectiveness

This section details the perceptions of the interviewees on the effectiveness of consultants. The analysis shows that SMEs focus on areas related to the installation process; the communication between the consultant and the client and the impact that the system has on the organisation.

The responses of the persons interviewed are presented in Table 4.16. The Managing Director of SPM sees a consultant as effective if the implementation process is not disruptive to the business. In essence, the consultant must be able to implement the system without incurring any major problems that would cause the business to stop operating. The Managing Director noted that the consultant on their project was effective because there were *"no hiccups"*. This SME assesses the consultant's performance according to whether the business is satisfied at the end of the project and whether the implemented software generally has an impact on the functions of the organisation.

Effective communication between a consultant and client SME is cited as an attribute of an effective consultant. The interviewee in TAG stated that effective communication was the hallmark of an effective consultant. The Manager noted, *"It's all about communication."* The Financial Controller of AM noted. *"It's communication. I think the communication relationship."* Therefore, a consultant that maintains effective communication with the client SME is seen as effective. The Manager of TAG further assessed the performance of the consultant by examining the way in which the implementation was planned and carried out. The Manager noted that they examined,

> *"...what sort of things were left out... what things needed to be added on in terms of the original planning. What were your (consultant's) planning*

documents looking like..."

In the case of AM, consultant effectiveness is perceived as the ability of the consultant to keep the project running. The Financial Controller of the company stated,

> *"I guess they're (consultants) having to, not only do their job, but they are going to have to make sure I'm doing my job effectively... Really they have to be able to keep the project running."*

Interestingly, this company assessed the consultant's performance according to the consultant's communication skills. The Financial Controller pointed out, *"Its communication, I think, the communication relationship. It's like any relationship, if the communications there, even when things are bad."*

The Manager of Dumani posited that a consultant was effective when the SME was able to apply what the consultant had shown them and additionally, that there was a financial improvement in the business. In this instance the focus was less on the attributes of the consultant and more on the impact that the software has on the organisation.

Table 4.17 summarises the results presented in Table 4.16. Column two lists what constitutes an effective consultant as perceived by the interviewees. It is worth noting that '*Client can apply knowledge gained*' emerged as an indicator in only one of the SMEs. Such a result again points to the lack of knowledge prevalent in SMEs but may also provide an explanation for some of the findings regarding the outcomes of the projects. Taking for example the case of TAG, this SME was not totally happy with the outcome of the project, as the aim of managing the accounting function internally did not materialise on completion of the project. The fact that this SME did not place emphasis on being able to apply know may therefore explain why they were unable to

take in-house of control of the accounting function.

SMEs	SME perception of Consultant Effectiveness	How SMEs assessed the Consultant's Performance
SPM	"Well the simple way the whole process was implemented...no disruptions, you know and we were able to carry on working."	"...Satisfaction of the client and impact on the business."
TAG	"At an implementation stage, bringing the project in on time and on budget, ...but if you're not able to bring it in on time, at least have effective communication..."	"Well, was it on time, was it on budget, does it work in the first place... what sort of things were left out, what things needed.... to be added on in terms of the original planning. What were your planning documents looking like, what was your communication like. How did the product meet the needs of the business?"
AM	"I guess they're having to, not only do their job but they are going to have to make sure I'm doing my job effectively. And that may sound like a bit, asking a lot, but really they have to be able to keep the project running."	"It's communication, I think, the communication relationship. It's like any relationship, if the communications there..."
Dumani	"That you can apply what they trying to tell you. The application wouldn't it. That it applies to the business and it improves, obviously, you know there has to be, an economical improvement with what you Southern Packaging end and what you get. I guess."	"How well they interpreted where the business needs to go, cause they need to know, with the IT where it's, they need to tell us. So they need to be experienced obviously..."

Table 4.16: SMEs' perception of consultant effectiveness

Indicator of Consultant Effectiveness (Perceived)	SPM	TAG	AM	Dumani
Problem free implementation process	x			
Project completed on-time		x		
Project completed on-budget		x		
Effective client-consultant communication		x	x	
Client can apply knowledge gained				x
Economic benefit for SME				x
Right solution for SME				x

Table 4.17: Summary of SMEs' perceptions of consultant effectiveness

In summary, while examining the perceived indicators of effective consultants, it emerged that effective consultants should possess the following attributes and skills:

1. Technical IS skills
2. Project management skills
3. Communication skills
4. The ability to transfer knowledge to the client
5. Knowledge about IS solutions.

4.3.2.4 IS Implementation Success

IS success is well researched in IS and project management literature (Delone and McLean 1992, 2003). This section presents the results of the interviews when the interviewees were questioned about the success of their most recent project and success in general. The results are presented in Table 4.18. Table 4.19 summarises the information presented in Table 4.18.

There was total agreement among the cases that IS implementation was successful when the implemented system was working as intended and fulfilling the purpose for which it

was obtained. This is captured in the following quote from the manager of TAG:

> *"It's working at the end of the day and your consultants have gone home. It's got to the end of the project, it's all installed. On a day by day or a month by month basis it is doing exactly what you want it to do, or exactly what you've agreed it's going to do."*

The interviewees in SPM and TAG also focused on the ability to retrieve information from the system as indicating that the implementation was successful. Quoting the manager of TAG,

> *"...You are using it (the system) on a regular basis and it's reporting... It's reporting what you want it to report or what you can get out of the system..."*

SMEs	SMEs' Perception of IS Success
SPM	"Ease of use. It's doing what it's supposed to do and its giving me information back from word go to now..." "Because it doing everything I imagined it would plus more..."
TAG	"It's working, at the end-of-the-day and your consultants gone home. It's got to the end of the project, it's all installed, on a day-to-day basis or a month-by-month basis it's doing exactly what you want it to do or exactly what you've agreed it's going to do So it's finished, the consultants no longer there on a day-to-day basis and your using it on your regular basis and it's reporting..." "In reality, as long as it's working, it's successful...."
AM	"I guess it's if were making our objectives really clear and were getting a result based on that from good communication."
Dumani	"Well I think it has done what we need to have done."

Table 4.18: SMEs' perception of IS success

In summary, there is widespread agreement among the SMEs interviewed that for the IS implementation project to be successful the implemented IS must achieve its intended purpose and meet the objectives of the organisation. The other indicators of a successful implementation that emerges from the interviews are: the ability to extract business information from the system; a working system; a system that is used regularly by the users and a system that is easy for end-users to use or operate.

IS Success Indicator	SPM	TAG	AM	Dumani
Ease of use	x			
Achieves purpose	x	x	x	x
Provides Information	x	x		
Works		x		
Regularly used		x		

Table 4.19: Summary of SMEs' perception of IS success

4.4 Consultant Interviews

In this section the results of the interviews with the consultants are presented. As in the previous section the key themes are also explored and discussed.

Table 4.20 provides a summary of the consultants involved in the study. Two of the consultants were classified as independent-resellers and the other was an accounting firm. As independent-resellers, consultants act independently of any particular software vendor and retail as well as implement various accounting systems. The independent-reseller consultant may sell several products and provide consulting services for products that he/she does not sell. The accounting firm in this study also resold and may be classified as a reseller. Table 4.21 summarises the various tasks and duties performed by consultants in the study.

Consultant	No. of Employees	Type of Consultant	Accounting Package
AIF Consultants	5	Independent-reseller	Accredo
ECR Consulting	5	Independent-reseller	Accredo
AT Consulting	23	Accountant	MYOB

Table 4.20: Summary of consultants interviewed

SME	List of Services (tasks and duties) generally provided by consultants	List of Services (tasks and duties) performed on most recent project
AIF Consultants	Analysis & Recommendations Manage implementation process Software Installation Software Configuration Business Process Re-engineering End-user Training Software Integration On-going support Fill in for SME staff	Software Customisation Recommendations Software Installation Software Configuration - Export/import master-files - Setup special pricing - Bank reconciliation - Data conversion - Stock - Implement Job Costing End-User Training
ECR Consultants	End-user Training Analysis & Recommendations On-going Support Software Customisation Business Process Re-engineering Fill in for SME staff	Analysis & Recommendations
AT Consultants	Software installation Software Configuration End-user Training Hardware provision & installation Recommend hardware and software	Software installation Software Configuration End-user Training

Table 4.21: Consultant's tasks and duties

4.4.1 AIF Consulting

AIF Consulting was an independent-reseller consultant who sold and provided services for the Accredo suite of software. The company had five employees, two were full-time and the other three were contracted on a per job basis. The two full-time employees are accredited installers of the Accredo system. The interviewee, Nigel, was also the founder of AIF Consulting and had fourteen years' experience as an accountant/consultant. Six of these years were running AIF Consulting.

Nigel stated that the main reason why SMEs engaged the services of consultants was due to the business and IS experience consultants possessed. He said, *"I guess the main thing is that we have the experience at doing the job and also the business experience..."* He further suggested that consultants managed the implementation of systems in SMEs:

> *"Well I guess it (the role) is being the de facto project manager really. Because the client buying the system has no idea really of the steps involved and what they need. I mean even to the point of telling them that, hey, before they buy the software they need to get a network setup..."*

Nigel also contended that consultants needed to realise that consulting was a "*people business"*. *"...Really, the most important thing is that it's a people business and you have to be able to communicate with people..."* He also noted that *"...you have to be able to listen to what they (the client) are wanting..."* In addition, the system had to work, have an impact on the organisation in the way the business operated and therefore satisfy the client.

Table 4.21 lists the services that this consultant normally provided as well as the

services that were required on the consultant's most recent project. The consultant from AIF Consulting provided a range of services from analysis to on-going support and even providing staff when SMEs were experiencing staff shortages. In Table 4.22 it is shown that by carrying out various tasks and duties the consultant overcomes the shortage of IS knowledge and IS skills in SMEs; in particular problem-solving skills, project management skills and IS technical skills.

Tasks & duties performed by consultant	**Consultant compensated for:**
Analysis & Recommendations	Problem solving skills
Manage implementation process	Project management skills
Software Installation	IS technical skills
Software Configuration	IS technical skills
Business Process Re-engineering	IS knowledge
End-user Training	IS knowledge
Software Integration	IS technical skills
On-going support	IS technical skills
Fill in for SME staff	IS knowledge

Table 4.22: Tasks and duties of consultants (AFI)

4.4.2 ECR Consulting

ECR Consulting was an independent-reseller consultant firm with five employees. Two were full-time and three were part-time. Four of the five employees were actively involved in consulting. This firm specialises in the Accredo software suite. Lucy (as she will be called) was senior and Harriett (as she will be called) was junior in terms of the number of years at the company and consulting experience. Lucy was professionally trained and had a total of seventeen years of experience as a consultant. Seven of those years were with the current firm. Harriett had two years of experience as a consultant and specialised in payroll.

The consultants both felt that SMEs resorted to engaging consultants when things were not going well or as they put it, "*usually when they get into trouble...*" This pointed to the reality that some SMEs found it difficult to implement systems by themselves and usually encountered a number of problems when they did attempt to do just that. After failing or running into difficulties, SMEs would seek the assistance of consultants. Lucy noted:

> *"The assumption that the manufacturers of the product make is that you (the clients) have some sort of understanding of accounting principles, but the reality is that a lot of people don't."*

This implies that the consultants believed that SMEs do not have the skills and the knowledge to implement accounting IS on their own. It was the duty of the consultant then to impart knowledge to the client. Lucy pointed out, *"And you impart knowledge along the way; that they are learning as well."* In addition, consultants were there to satisfy the client. This was expressed when Lucy stated that consultants had to, *"Keep the customer happy. I think that they have to be 95% satisfied that they have made the right decision once you've completed the implementation phase."* And Harriett agreed adding that she felt consultants had to, *"... keep them happy, giving them confidence in the system..."*

The consultants from ECR Consulting contended that as consultants it was important that they build a relationship with the client during the project. In addition, consultants had to continue to have an on-going relationship with SMEs. It was further expressed that consultants should be able to understand what SMEs wanted and help them to achieve their goals. The following quote from Harriett captures this:

"I think when they (consultants) can build that relationship with a client so that they can understand what the client wants and help them to get there. Either by providing the services themselves or with the honesty, if they can't do it, saying well that won't work with this product you might want to look at these ones..."

The consultants believed that when consultants did a good job, the client would be satisfied enough to, *"...recommend you to their friends."* In addition, consultants had to ensure that SMEs were not too dependent on consultants in order to utilise the implemented system. On the last project Lucy concluded that it was about 85% successful stating:

"Why I rate it at 85% is that the person that does most of the work in the system is still having problems putting her head together as to how the whole thing hangs together, ... But in terms of the customisation side of things that I did, we're still tweaking. But they (the client) are very satisfied..."

The consultants from ECR Consulting also carry out a range of tasks and duties. The following table list these duties and the IS skills that the consultant compensate for.

Tasks & duties performed by consultant	Consultant compensated for:
Analysis & Recommendations	Problem solving skills
Software Installation	IS technical skills
Software Configuration	IS technical skills
Business Process Re-engineering	IS knowledge and skills
End-user Training	IS knowledge and skills
On-going support	IS technical skills
Fill in for SME staff	IS knowledge

Table 4.23: Task and duties performed by consultants (EC Consulting)

4.4.3 AT Consulting

AT Consulting was an accounting firm with 23 employees. The accountant had been involved in consulting for six years and had experience in finance and IT having been previously employed at both accounting and IT firms in the past. This firm was a reseller for the accounting package MYOB and provided consulting services supporting the product.

The consultant, Quincy, felt that SMEs engaged consultants for two reasons. 1) When they encounter problems but did not know what the actual problems were so they turned to a consultant; 2) when someone else, usually an accountant, suggested that they needed a consultant to help them implement a system in order to improve or fix particular issues. It was Quincy's opinion that consultants needed, *"To listen. Very, very much it's to listen and to make happen, in that order."* Quincy related that it was only after a consultant listened and understood a client's problem would he/she be able to solve it. The consultant stated that, *"...you can't find a solution to somebody's problem until you understand the problem."*

The consultant also believed that consultants needed to do a post implementation review to ensure that they had delivered what they said they were going to deliver. According to Quincy, consultants also need to make their clients happy, and to ensure that the business was able to get better information than they had before the software was implemented. Quincy stated,

> *"But if they are actually getting better information, if they understand their business more, if they can respond quicker to trends, to changes and they meet their compliance, that's a success. That's how I see it."*

Being an accounting firm AT Consulting was different from the other consultants, as this firm already has a relationship with most of its clients from the accounting side of the business. Quincy expressed,

> *"With accountants, clients tend to either know their accountant really well, and, trust them or their lawyer really well and trust them, or both. And so if somebody gets in a bit of a problem, the first person they ask is their accountant..."*

Nonetheless, the accounting firm shared similarities with independent-reseller consultants. The two groups agreed on their opinion of why SMEs engaged consultants and what consultants needed to do for their clients, (discussed in the next section). AT Consulting was the only consultant that in addition to recommending hardware supplied and installed computing hardware. Table 4.24 presents that various tasks and duties performed by AT consulting.

Tasks & duties performed by consultant	Consultant compensated for:
Analysis & Recommendations	Problem solving skills
Software Installation	IS technical skills
Software Configuration	IS technical skills
End-user Training	IS knowledge and skills
On-going support	IS technical skills
Recommend hardware and software	IS knowledge
Provide hardware and install hardware	IS technical skills

Table 4.24: Tasks and duties performed by consultants (AT)

4.4.4 Analysis of Consultant Interviews

In this section the cross-case analysis of the results of the interviews with consultants, relating to the themes of this research, are presented. These themes are:

i. The reasons why SMEs engage consultants
ii. Consultant tasks and duties
iii. Perceived role of consultants
iv. Consultant effectiveness
v. Implementation success

4.4.4.1 The Reasons why SMEs engage consultants

Overwhelmingly, the consultants interviewed indicated that the main reason why SMEs turned to consultants was because of a difficulty, problem or situation that affected the business. The consultant from AT Consulting noted that usually SMEs would realise that there was a problem but would not understand the actual problem. The consultants from ECR Consulting noted that SMEs usually ran into problems with something they

were doing, or thought that they were doing something right only to realise that they were not. In addition, SMEs would sometimes purchase off-the-shelf software and then run into difficulties trying to implement it by themselves. The consultant from AIF Consulting completed the picture when he indicated that the reason why SMEs turned to consultants was because consultants had the experience to help SMEs.

Examining the reasons presented, it becomes apparent that SMEs do not possess the IS skills and IS knowledge necessary to manage and implement systems or to solve the problems that they encounter. Consequently, they resort to overcoming these limitations by engaging more experienced persons in the form of consultants (Table 4.25). Viadiu et al. (2002) noted that when SMEs lack knowledge there are three options at their disposal, buy the knowledge, develop it themselves or rent it. The SMEs in the study chose to rent it by engaging consultants.

Consultant	Reason for Consultant	Indicates A Lack of (IS skills):	Indicates A Lack of (IS knowledge):
AIF Consulting	"I guess the main thing is that we have experience at doing the job and also business experience."	Know-how	-
ECR Consulting	"Usually when they get into trouble..."		
	"Usually they've been going along and doing something and suddenly everything falls all apart..."	Know-how	Know-what
	"The assumption that the manufacturers of that product make is that you have some sort of understanding of accounting principles, but the reality is that a lot of people don't..."	Know-how	Know-what
AT Consulting	"There is probably two reasons. One, they know something is wrong but they just don't know what, and the other is somebody will tell them. One of the directors here will go, if you want to keep the cost down, you need to do this and that will be the trigger."	-	Know-what

Table 4.25: Reasons why SMEs engage consultants (consultants)

The reasons why SMEs engage consultants are summarised in Table 4.26:

Reasons why SMEs engage consultants:
i. SMEs lack IS knowledge where knowledge refers to knowing what to do with regards to problems and issues
ii. SMEs lack IS skills where IS skills relate to abilities like know-how to use accounting systems

Table 4.26: Consultant - reasons why SMEs engage consultants

4.4.4.2 Tasks and Duties of Consultants

This section presents the results of the interviews regarding the tasks and duties performed by consultants. There are different stages in the overall life cycle of an implementation project and consultants are likely to assist during various phases of the project. As was done previously for the SMEs, the systems development life cycle (SDLC) is also utilised.

Table 4.27 captures the tasks that consultants perform during IS projects, this is synthesised from Table 4.21 presented earlier. Table 4.27 list these duties from the most common to the least common. The most common duties consist of software installation, software configuration, end-user training as well as analysis and recommendations. These are followed by software customisation.

Tasks Carried out by Consultants	SDLC Phase
Installation of the Software	Implementation
Configuration of the Software	Implementation
Training of users	Implementation
Analysis and Recommendations	Analysis and Design
Customisation of the software	Implementation

Table 4.27: Tasks and duties of consultants (Consultants)

4.4.4.3 Consultants' Perceptions of the Role of Consultants

Not surprisingly, the consultants have varying views on what they believe is the role of consultants. The consultant from AIF Consulting, Nigel, believes that the role of consultants is to manage the implementation and advise SMEs on almost all aspects of the system. The consultants from ECR Consulting contend that the role of consultants is primarily to, *"Keep the client happy."* In addition, the consultants from ECR Consulting insist that consultants had to transfer knowledge to clients. The consultant from AT Consulting, the accounting firm, believes that the role of consultants is to solve client's problems. This is achieved by listening to clients in order to understand their problems.

Despite these very different perceptions, there is an underlying common link. In all three cases the perceived role of consultants relates to the fact that SMEs lack IT/IS expertise, that is, IS skills and IS knowledge. For example, Nigel stated that *"...the client buying the system has no idea really of the steps involved and what they need."* The consultants from ECR Consulting noted, *"And you impart knowledge along the way that they are learning as well."* This indicates a lack of knowledge in client SMEs. From the accounting firm AT, the consultant is expected to solve the client's problem.

This is an indication that SMEs did not possess the knowledge and skills to solve problems on their own.

Table 4.28 captures what each consultant stated was the role of consultants. Table 4.29 synthesises the information in Table 4.28. From this table there are seven perceived roles of consultants:

1. Solving the client's problem
2. Advising the client SME
3. Listening to the client SME (understand the problem)
4. Keep the client SME happy (satisfied)
5. Make the client SME confident in using the system
6. Transferring knowledge to the client SME and
7. Managing the implementation project.

Note that the consultant’s role is described in terms of what they do.

Consultant	Type of Consultant	Perceived Role of Consultants (Consultant Perspective)
AIF Consulting	Independent-reseller	"Well I guess it is being the de-facto project manager really. Because the client buying the system has no idea really of the steps involved and what they need, I meant even, even to the point of telling them that before they buy the software they have to get a network setup, you know."
ECR Consulting	Independent-reseller	"Keep the customer happy. I think that they have to be 95% satisfied that they have made the right decision once you've completed the implementation phase." "So yeah, keep them happy, giving them confidence in the system and what you're doing with it, or what they're doing with it." "And you impart knowledge along the way that they are learning as well."
AT Consulting	Accountant	"To listen! Very, very much it's to listen and to make happen, in that order. Because you can't find a solution to somebody's problem until you understand the problem."

Table 4.28: Consultants' perceptions of the role of the consultant

Consultant	Type of Consultant	Perceived Role of Consultants (Consultant Perspective)
AIF Consulting	Independent-reseller	"Well I guess it is being the de-facto project manager really. Because the client buying the system has no idea really of the steps involved and what they need, I meant even, even to the point of telling them that before they buy the software they have to get a network setup, you know."
ECR Consulting	Independent-reseller	"Keep the customer happy. I think that they have to be 95% satisfied that they have made the right decision once you've completed the implementation phase." "So yeah, keep them happy, giving them confidence in the system and what you're doing with it, or what they're doing with it." "And you impart knowledge along the way that they are learning as well."
AT Consulting	Accountant	"To listen! Very, very much it's to listen and to make happen, in that order. Because you can't find a solution to somebody's problem until you understand the problem."

Table 4.28: Consultants' perceptions of the role of the consultant

Consultant	Consultant Effectiveness	Performance of Consultant
AIF Consulting	"Am I making a difference...? Is invoicing going out more accurately, is it going out faster, is it going out the way that the business owner wants it to. Is the stock evaluation more accurate; is it able to be done sooner in the month? Can we do financial reports that are more accurate, sooner in the month rather than later? Has the profitability of the business increased since we have done this project?" "...And usually they don't mind paying the bill, I mean that's the ultimate confirmation really."	"...It's a people business and you have to be able to communicate with people, and then separately to that you have to be able to listen to what they are wanting to do and kind of subtly guide them if you think you know better, where they, where they think they want to be..."
ECR Consulting	"I think when they can build that relationship with a client so that they can understand what the client wants and help them to get there...." "I think to, another measurement of it is whether you continue to have an on-going relationship, and whether they recommend you to their friends."	"Well obviously whether you have achieved your goals, when the client is happy, and when you've got the on-going relationship, I think that's it." "And I guess whether you've achieved it in some time frame you had in mind, bearing in mind things that could have happened along the way that you couldn't have predicted."
AT Consulting	"I think, if you do those reviews and you do the checks and the client is happy with what they've got or at least its working better than what they had in the past."	"Whether there's any money in the job, it's nice to make a profit over and above your hourly rate, or whether there is any write-off, if you have to write-off your time, and that's never good to do that, but it happens." "...I think and in the outcomes, is the reporting good, because that to me is where it all hinges around, the ability to report, is that good?"

Table 4.30: Consultants' perception of consultant effectiveness

Indicator of Consultant Effective (Perceived)
i. Achieve goals of the client
ii. Impact on SME (Performance)
iii. Client Satisfaction
iv. Build relationships

Table 4.31: Summarised consultants' perspective on consultant effectiveness

4.4.4.5 IS Implementation Success

This section presents the results when the consultants were asked about the success of their most recent project and success of implementation projects in general. The results are presented in Table 4.32 and Table 4.33 summarises the information presented in Table 4.32.

IS implementation is successful if the client is satisfied; if the goals of the client organisation are met and the client is able to gather business information from the system. An implementation is also considered successful when the client no longer requires that the consultant be there on a regular basis. In other words the client is '*self-sufficient*' with regards to using the implemented system.

Consultant	IS Success
AIF Consulting	"The system works, within a short Southern Packaging ace of time they are getting the desire result of out it. And usually they are happy to tell other people About it."
ECR Consulting	"When you are not having to go out to the client once every week. When the phone calls get down to maybe twice a month, you know that you've got past that stage."
AT Consulting	"We said we were doing this, are we doing it?" and "We said we were doing this, are we doing it?" Yes, and have you met all your goals? "

Table 4.32: Consultants' perception of IS success

IS Success Indicator	AIF Consulting	ECR Consulting	AT Consulting
Client Satisfaction	x		
Getting Business Information	x		
System is working	x		
Client using system		x	
Achieve goal of project			x

Table 4.33: Summarised consultant's perspective on IS success

4.5 Cross-case Analysis (SME-Consultants)

This section presents the cross-case results from the consultant and SME cases. A more holistic view is obtained by comparing the perspectives of SMEs and the perspectives of the consultants. The analysis focuses on the following key themes/areas:

1. The reasons why SMEs engage consultants
2. The tasks and duties of consultants
3. The perceived role of consultants

4. Consultant effectiveness
5. Implementation success

4.5.1 The Reasons why SMEs engage consultants

There is agreement between the two groups on the reasons why SMEs engage the services of IS consultants. Comparing the results in Table 4.9 and Table 4.25 as well as the conclusions of Table 4.10 and Table 4.26 the following reasons are suggested:

1. SMEs lack IS knowledge
    a. Lack knowledge about IS solutions
    b. Lack knowledge about what to do regarding accounting systems
    c. Lack knowledge about what problems or issues they face
2. SMEs lack IS skills
    a. Lack ability to solve problems
    b. Lack technical IS skills
    c. Lack ability to use IS (accounting systems)

It can be concluded that SMEs turn to or engage the services of IS consultants because they lack the necessary IS expertise (knowledge and skills) to find solutions to their problems and issues. SMEs lack expertise in software, hardware (computers and networking) and related technical skills needed to use and maintain IS. In the case of this study SMEs also lack expertise in business functional areas such as accounting. However, it is noted that it is likely that SMEs will lack IS expertise regardless of the software or system being considered.

4.5.2 Tasks and duties of consultants

There is some agreement between both groups (SMEs and consultants) on the tasks and duties of consultants. A comparison of the results in Table 4.11 and Table 4.22 shows that consultants carryout the following tasks and duties:

1. Installation of the software
2. Configuration of the software
3. Analysis and recommendations
4. Training of end-users
5. Customisation of the software

There is however a difference in the results between Table 4.11 and Table 4.22. In Table 4.11 the additional task of on-going technical support is recorded that is not found in Table 4.22. This is recorded in the SME results and not the consultant results. However, when compared to the services that consultants generally provide, on-going technical support is listed. This duty is therefore included as part of the list of tasks and duties performed by consultants. Table 4.34 represents the tasks and duties of consultants.

Tasks and Duties Performed by IS Consultants	Consultants	SMEs
Installation of software	X	X
Configuration of software	X	X
Analysis and Recommendations	X	X
Training of end-users	X	X
Customisation of software	X	-
On-going technical support	-	X

Table 4.34: Tasks and duties performed by consultants

4.5.3 The Perceived Role of Consultants

There were differences between the perceptions of the SMEs and consultants regarding

the role of consultants. By comparing the perspectives, an attempt is made to see what agreement and understanding there is between SMEs and consultants on the role of consultants.

When Table 4.15 and Table 4.29 are compared there is agreement between both groups that advising SMEs on IT/IS is a role of consultants. This comparison is presented in Table 4.35. Apart from that, there is no other agreement between the two groups. However, a closer examination of Table 4.14, Table 4.28 and Table 4.35 shows that the consultants and SMEs may be describing similar themes. It might then be worthwhile to create groups of similar or related perceptions. Table 4.36 below shows the results of this exercise.

Perceived Role of the Consultant	**SMEs**	**Consultants**
Installation of the system	X	
Understand the business	X	
Installation of the system - on time	X	
Installation of the system - on budget	X	
Analysis of the situation	X	
Advise the SME	X	X
Solving the client's problem		X
Listening to the client SME (understand the problem)		X
Keep the client SME happy (satisfied)		X
Make the client SME confident in using the system		X
Managing the implementation project		X

Table 4.35: comparison of SMEs' and consultants' perceptions of the role of consultants

Grouping (Role of Consultants)	Perceptions on Role
Analysis and Recommendations	Advise the SME Analysis of the situation (problem) Solve the client's problem Understand the business Listen to the SME (understand the problem)
Implementation/Installation of IS	Installation of the system Manage the implementation
Transfer of IS knowledge and IS skills	Make SME confident using the system Impart knowledge
Client Satisfaction	Keep SME happy (Satisfaction)

Table 4.36: SMEs' and consultants' perceptions of the role of consultants

It can be seen then that based on the perceptions of both SMEs and consultants the role of IS consultants consist of (Table 4.36):

1. Analysing and Recommendations
2. Implementing and installing of IS
3. Transfer of IS knowledge and IS skills
4. Client Satisfaction

4.5.4 Consultant Effectiveness

Like the perceptions of the consultant's role, the SMEs' and consultants' perceptions of consultant effectiveness are very different. The indicators of effective consultants derived from the SME cases are primarily related to the attributes of consultants and in particular the skills of consultants. On the other hand the indicators of effective consultants derived from the consultant cases are focused primarily on the software's effect on SMEs. While SMEs focused on consultants, consultants focused on SMEs. This is observed by comparing the results shown in Table 4.17 and Table 4.31. This comparison is presented in Table 4.37.

Indicator of Consultant Effectiveness (Perceived)	SMEs	Consultants
Problem free implementation process	X	
Project completed on-time	X	
Project completed on-budget	X	
Effective client-consultant communication	X	
Client can apply knowledge gained	X	
Economic benefit for SME	X	
Right solution for SME	X	
Achieve goals of the client		X
Impact on SME (Performance)		X
Client Satisfaction		X
Build relationships		X

Table 4.37: A comparison of consultant effective as perceived by consultants and SMEs

A comparison of Table 4.17, Table 4.31 and Table 4.37 proves useful as it allows similar indicators to be grouped under a single heading. It reveals that SMEs and consultants discuss similar themes. These groups are shown in Table 4.38.

Grouping (Indicators of Effective Consultants):	SMEs	Consultants
Effective Implementation process		
Problem free implementation process	X	
Implement project on-time	X	
Implement project on-budget	X	
Effective communication between consultant and SME	X	
Relationship built between consultant and SME		X
SME can apply knowledge gained	X	
Positive Business impact		
SME has economic improvement	X	
Impact on SME performance		X
The system is the right solution for the SME	X	
Successful project outcome		
The client is satisfied		X
Achieve client goals		X

Table 4.38: Indicators of effective consultants

In Section 4.2.2 attributes of consultants emerge as a theme of interest from the discussions with SMEs about consultant effectiveness. To understand how the attributes of consultants relate to the effectiveness of consultants, consultants' attributes are matched with the indicator of consultant effectiveness it most closely relates to. Table 4.39 lists the indicators of effective consultants and the corresponding consultant attributes. In column one of Table 4.39 similar concepts are grouped together. For example the three indicators 'problem free implementation', 'implement project on-time' and 'implement project on budget' are grouped to form 'effective implementation process'. The indicators 'economic improvement' and 'impact on SME (performance)' are grouped to form 'positive business impact'. Finally, the indicators 'achieve client goals' and 'client satisfaction', are grouped to form 'successful project outcome'.

Grouping (Indicators of Effective Consultants):	**Consultant Attributes**
Effective Implementation process Problem free implementation process Implement project on-time Implement project on-budget	Technical IS skills Project Management Skills
Effective communication between consultant and SME	Communication skills
Relationship built between consultant and SME	People skills
SME can apply knowledge gained	Knowledge transfer skills
Positive Business impact SME has economic improvement Impact on SME performance	-
The system is the right solution for the SME	Knowledgeable
Successful project outcome The client is satisfied Achieve client goals	-

Table 4.39: Indicators of effective consultants and related consultant attributes

4.5.5 Consultants' Attributes

Table 4.40 shows the attributes of effective consultants from Table 4.39. In Table 4.40 similar concepts are also grouped together provide three areas that describe the attributes of consultants:

1. Hard skills,
2. Soft skills and
3. Teacher/Trainer skills.

Attributes of Effective Consultants:
Hard skills 1. Consultant possesses good technical skills 2. Consultant has good project management skills 3. Consultant is knowledgeable about solutions
Soft skills 1. Consultant has good communication skills 2. Consultant has good people skills
Teacher/Trainer skills 1. Consultant has the ability to transfer knowledge

Table 4.40: Attributes of effective consultants

4.5.6 Implementation Success

There is agreement between both groups on what qualifies as a successful IS implementation project. Comparing Tables 4.19 and 4.33 shows that both groups agree that the implementation project is successful when:

1. The implemented system is working and there are no issues or problems.
2. The users of the system are making regular use of it.
3. The purpose or goals of the project have been achieved.
4. SMEs can extract useful business information from the system.

The apparent contrasting result comes when the SME group suggests that 'ease of use' of the system is an indicator of a successful implementation (Table 4.41). The consultant group suggests that a satisfied client is an indicator of a successful implementation. It is likely that both are indicators of IS success.

SME	Consultants
-	Client Satisfaction
Provides Information	Getting Business Information
Works	System is working
Regularly used	Client using system
Achieves purpose	Achieve goal of project
Ease of use	-

Table 4.41: Comparison of the indicators of IS implementation success

Table 4.42 summarises the indicators of implementation success from the two groups. The results are in agreement with the IS success model proposed by Delone and McLean (2003). The key criteria of Use, User Satisfaction and Net Benefits (impact on the organisation) are evident in Table 4.42.

IS Implementation Success:
1. The system is working with no problems or issues
2. The client is using the implemented system
3. The implemented information system meets the purpose and objectives of the organisation
4. The system provides useful business Information to the users
5. The system is easy to use
6. The client SME is satisfied with the system

Table 4.42: Indicators of IS success

4.6 Chapter Summary

This chapter presents the results of the exploratory investigation into the role of consultants and their impact on SMEs. Several themes are investigated by conducting interviews with SMEs and with consultants. The key themes investigated were:

1. The Reasons why SMEs engage consultants.
2. Consultants' tasks and duties.
3. Perceived role of consultants.
4. Consultant effectiveness.
5. Implementation success.

The results indicate that the nature of SMEs in lacking IS knowledge and skills is likely the predominant reason why the SMEs in this study engaged consultants. It is revealed that SMEs are still very reliant on experts for the implementation of accounting systems and to solve problems or issues related to accounting. It is in this light that the role of the consultant is defined. Consultants help SMEs to overcome the lack of IS knowledge, IS skills and abilities that are known to affect these organisations.

While examining what makes consultants effective during implementation of accounting software several consultant attributes have emerged. These attributes are organised into three groups: hard skills, soft skills and teaching/training skills. Hard skills, it is determined relate to knowledge of accounting solutions and skills to implement accounting. Soft skills are associated with communication and people skills, and teacher/trainer skills are linked to the ability of consultants to transfer knowledge.

The other areas linked with the effectiveness of consultants during implementation projects relate to the outcome of the project. The outcome of the implementation project

is examined mainly as IS implementation success. Implementation success is defined by use of the system, user satisfaction with the system and the information that users derive from the system.

Several themes have emerged from the data discussed so far. The first emerging theme is the impact of consultants on SMEs. It can be concluded that consultants compensate for IS knowledge and IS skill and additionally impart/share knowledge with SMEs who lack IS knowledge, IS skills and accounting expertise. Consultants' attributes, the relationship between consultants and SMEs and the level of communication between consultants and SMEs are also dominant themes (Figure 4.1).

In the next chapter the results presented are examined and discussed in line with resource-based theory (RBT) and knowledge-based theory (KBT) of the firm. Given the nature of SMEs and the findings so far it is posited that RBT and KBT will provide an ideal lens to examine the data and analyse the results presented.

Figure 4.1: Emerging Themes

5 Phase One Analysis

5.1 Introduction

In this section, the results presented in the previous chapter are analysed in an attempt to answer the research questions and achieve the objectives of the study. The analysis will show that consultants have an effect or impact on IS knowledge assets in SMEs at the individual and organisational levels. The analysis will show that consultants have an effect on IS abilities (IS competencies) in SMEs at the individual and organisational levels.

This chapter proposes a '*high-level model'* inducted from the data analysis. The model proposes that there may be a relation between IS knowledge assets (individual/organisational) and IS success. The model also considers that there may be a relation between IS competencies (individual/organisational) and IS success. Additionally, the high-level model implies that certain attributes of the consultant may play a role in how he affects or influences IS knowledge assets and IS competencies in SMEs.

Chapter 5 includes the following major sections:

5.2 Research Questions and Objectives

Before beginning the analysis of the data, the research questions and objectives guiding this study are briefly recapped. The research questions guiding this phase of the study are:

1. What role do IS consultants undertake/play when they assist SMEs with the implementation of IS?
   1.1. How do consultants, by fulfilling their role, impact/influence SMEs?
2. How can theories of the firm be used to explain the impact that IS consultants have on SMEs?
   2.1. How can the effect of consultants on SMEs be explained using KBT?
   2.2. How can the effect of consultants on SMEs be explained using RBT (with the focus on SMEs' abilities)?

To provide answers to the questions posed, the following objectives are proposed:

Objective 1: to determine the role(s) consultants undertake and examine how the roles consultants influence SMEs.

This objective is designed to provide an answer to Research Question 1. It is expected that when this objective is achieved it will provide a deeper understanding of the kinds of role(s) consultants play, as well as provide a deeper understanding of their role as intermediaries. In addition, this objective is designed to explore and explain how by executing their role, consultants affect the implementing organisation. When exploring the effect of IS consultants the nature of SMEs is taken into consideration. Finally, this

objective should reveal how consultants can be best utilised to provide the most benefit to the implementing organisation.

Objective 2: to determine the impact that IS consultants have on IS knowledge by utilising the explanatory power of KBT.

Objective 3: to determine the impact that IS consultants have on IS abilities SMEs by utilising the explanatory power of RBT.

Having explored in detail the role of IS consultants the above objectives are designed to determine the impact that consultants have by applying RBT and KBT. In so doing, these objectives will provide an answer to Research Question 2.

These objectives are designed to gain in-depth understanding of the interactions between IS consultants and SMEs. It is from these objectives that this study begins to develop a theoretical explanation of the impact consultants have on SMEs.

5.3 Reasons why SMEs engage IS consultants

Before attempting to answer the research questions, it is important to examine the reasons why SMEs in the study engaged consultants. In Chapter 4 two reasons were advanced to explain why SMEs engaged consultants. These are:

1. SMEs lack of IS knowledge
2. SME lack of IS skills

SMEs do not possess the IS knowledge and IS skills needed to find software solutions, nor manage and implement these solutions on their own. In some cases knowing what

solution is the most suitable is a difficult task. For example, the Managing Director from Southern Packaging noted when discussing his reason for engaging a consultant, *"...we did not really understand what we wanted"*. The consultants interviewed also confirmed the idea of a lack of IS knowledge and IS skills being key reasons by SMEs hired consultants.

Thong (2003) in his framework of resource constraints and information systems implementation noted that there was usually a lack of in-house IS expertise in small businesses and they were therefore likely to be dependent on external experts. Welsh and White (1981) posited that resource constraints in small businesses suggest that they suffer from '*resource poverty'* and face severe time constraints, financial constraints, and expertise constraints. Expertise constraints refer to the lack of knowledge and skills within small businesses. Small businesses do not usually have the capability to undertake their own IS implementation projects due to their lack of internal IS expertise. Attewell (1992) suggested that in small businesses external experts act as mediators to compensate for the lack of IS knowledge. They also lowered the IS knowledge barrier to successful IS implementation.

Chapter 2 shows that prior research suggests that there are six reasons why firms generally engage consultants:

1. Firms engage consultants for their knowledge and expertise since firms may not have sufficient knowledge or expertise in-house (Nevo et al., 2007)
2. Firms engage consultants as an alternative to hard to find IT staff (Nevo et al., 2007)
3. Firms engage consultants to provide non-routine tasks such as software and Web application development, project management, or benchmarking, (Nevo et al.,

2007).

4. Firms engage consultants for knowledge transfer to internal IT staff (Nevo et al., 2007) and to gain technical know-how (Willcocks et al., 2004).
5. Firms face difficulties developing custom software or find packaged-software more appealing. This is especially true for SMEs (Howcroft and Light, 2008).
6. Firms hire consultants to compensate for a lack of capability. The lack of these managerial capabilities represents one of the main barriers to technology transfer especially in smaller and less experienced firms. Consultants act as intermediaries to assist and advise firms, effectively compensating for a lack of capability (Bessant and Rush, 1995).

A comparison of the results of this study and a review of the literature indicates that the reasons why SMEs engaged consultants were in line with two of the six reasons suggested in the literature. The SMEs in this study did not have sufficient knowledge or expertise in-house, a reason suggested by Nevo et al. (2007). The SMEs in this study suffered from a lack of IS capabilities which may be defined as skills or abilities. And as Bessant and Rush (1995) indicated, consultants act as intermediaries to assist and advise firms, effectively compensating for a lack of capability. Therefore, it may be concluded that the reason why SMEs engage consultants is as a direct result of the nature of SMEs; SMEs engage the services of IS consultants generally because of a lack of IS knowledge and a lack of IS skills (i.e. IS expertise).

Attention will now be focussed on addressing the objectives of this study. In the following section the role of IS consultants is analysed in an effort to provide an answer to Research Question 1.

5.4 The Role of IS consultants

Table 4.37 in Chapter 4 presents the perceived role of IS consultants. Four items are presented to represent the role(s) of IS consultants:

1. Analysis and recommendations, which are tasks/duties of consultants (see Table 4.35).
2. Implementation/Installation of IS, this is also a task/duty of consultants (refer to Table 4.35).
3. Transfer of IS knowledge and IS skills.
4. Client satisfaction.

These four items were synthesised from the results of the case studies conducted in this phase of the study. The stated perceptions of the role of consultants are compared with existing literature. In reference to Table 2.3, Chapter 2, prior literature on SMEs suggests that consultants act as intermediaries. A comparison of the four roles from literature and the perceived roles determined by the results of this study is made. The four roles of intermediaries identified are: (1) The knowledge transfer role, (2) The experience-sharing role, (3) The 'marriage broker' role and (4) The conduit role. This comparison is presented in Table 5.1.

Perceived Role of Consultants (This study)	**Role of Consultants (Prior research)**
Analysis & Recommendations	Conduit, 'Marriage Broker'
Implementation/Installation	Conduit, 'Marriage Broker'
Transfer of IS knowledge and IS skills	Marriage Broker, Conduit
Client Satisfaction	-

Table 5.1: Role of IS consultants

Client Satisfaction involves the consultant paying attention to the satisfaction of SMEs.

Consequently, client satisfaction is not treated as a role of consultants. Client satisfaction does not map or relate to any of the roles discussed in the literature as shown in Table 5.1. This perceived role is better understood as an outcome of the implementation, more in line with a measure of project success (Thong, 2003). It is therefore concluded that the role of the IS consultants is mainly intermediary as prior literature suggests. This intermediate role may be understood:

1. The conduit role
2. The 'marriage broker' role

5.4.1 The Conduit Role

Howcroft and Light (2008) point out that as '*conduits*' consultants position themselves between IT suppliers and SMEs. This allows consultants to provide services such as advice to assist with finding appropriate products, to implement and customise products, to train, to provide support services and to integrate software with existing systems. It is noted in this study that consultants provide several of the above services. For example, in the SME cases consultants assist the SMEs in finding appropriate accounting packages. Additionally, the consultants carried out the installation of the accounting package as well as provided training to staff. It was determined that by carrying out their tasks and duties consultants were compensating for a lack of abilities in SMEs. Therefore, the conduit role when applied to the current study indicates that consultants help SMEs with their ability to (i) analyse and solve their problems, (ii) install software, (iii) configure software, and (iv) customise software.

5.4.2 The 'Marriage Broker' Role

The 'marriage broker' role involves consultants acting as a single point of contact through which clients can access a wide range of specialist services (Bessant and Rush, 1995). Carey (2008) refers to the bridging role of consultants. In the bridging role consultants carry out activities such as: transferring specialised knowledge; sharing ideas and experiences; acting as a point of contact for a wide range of specialised services; and assisting clients to clearly specify their particular needs. It can be concluded that the bridging role shares similarities to the 'marriage broker' role.

Referring to the tasks and duties performed by consultants in this study, it is noted that as 'marriage brokers', consultants affect SMEs by providing specialised services that allow them to compensate for SMEs' lack of ability to primarily analyse and solve their problems. For example, in the SME cases the consultants help the SMEs by suggesting what accounting package would best address the needs of the organisation. Additionally, consultants also transfer specialised IS knowledge and IS skills to SMEs.

5.5 Applying Resource-based Theory

Past literature, (Thong, 2003; Caldiera and Ward, 2003; Eikebrokk and Olsen, 2007; Butler and Murphy, 2008; and Cragg et al., 2011), was considered in order to determine how RBT may be applied to IS implementation in SMEs. This study takes the position that abilities or capabilities are resources at the disposal of a firm (Barney, 1991 and Rivard et al., 2006). SMEs are known to suffer from a lack of resources. Referring to the results of the study so far it is noted that the SMEs lack IS skills, which are abilities/capabilities that an individual or organisation may possess. So far, the idea of IS skills discussed have been at the organisational level.

A review of the RBT literature in IS (mentioned above) suggests that considering IS competencies would be an ideal way to examine IS implementation. IS competencies as defined by Cragg et al., (2011) refer to skills and technologies and involve the ability to develop, manage and deploy resources in support of a capability; where capabilities are the strategic application of competences. Such a definition fits well with IS implementation projects. As such, it is necessary to utilise a framework through which the data and results of this study are viewed and interpreted and fits well with IS implementation, as well as sheds light on the processes taking place.

In choosing a framework, two criteria are considered important:

(1) A comprehensive framework that identifies IS competencies applicable to SMEs. This is important since this phase of the study is exploratory.

(2) A framework that views competencies more as abilities since results of studies suggest that the abilities (or lack of abilities) of SMEs are an important theme in the implementation process.

In using these criteria the two frameworks of Eikebrokk and Olsen (2007) and more recently that of Cragg et al (2011), emerged as applicable to the IS implementation in SMEs.

The framework of Eikebrokk and Olsen (2007) is comprehensive as it encompasses most elements of the other similar frameworks (Table 5.2). This framework has a total of seven competencies. Cragg et al.'s (2011) framework is also comprehensive as it has twenty-two (22) competencies grouped into six (6) macro-competencies (Table 5.3). Since the Eikebrokk and Olsen (2007) framework was developed to examine e-business competencies some adjustments are made to make the framework more applicable to accounting systems.

Macro-competence	Competencies	Description	Consultant Role (Intermediary)
Strategy and Vision	**Concept of Accounting (IS)**	The company's ability to envision the strategic potential of new accounting software. It reflects the maturity of SMEs' understanding of accounting and it's potential.	Consultants help SMEs to understand their requirements for the software
	Strategic Planning	The company's ability to understand and use strategic planning methods needed to develop a strategy for accounting software.	Consultant help manage the implementation projects suggesting Best practices for the software
Sourcing and Alignment	**Sourcing Competencies**	The ability to secure access to relevant competencies either inside or outside the company.	Consultants provide expert services to SMEs whereby skills and abilities not available internally may be purchased by engaging consultants.
	Alignment Competencies	The ability to combine and use available competencies through for example training or outsourcing.	Consultants provide training to SMEs as part of the implementation process. This allows SME to combine and existing abilities.
IT-Business Process Integration	**Competency in Process Integration**	The ability to integrate IT and business knowledge to devise new business processes.	Consultants provided advice and assistance to SMEs by implementing changes to existing processes.
	Management of IT	IT project management, and planning for control and standards - IT budget or an explicit IT plan.	Consultants managed the projects in some cases and aid SMEs to assess and understand the benefits of the software.
	Systems and Infrastructure	Knowledge of the data, network, and processing architectures that supported the enterprise applications and services.	Consultants provided information, advice and recommendations on infrastructure needed to support the software.

Table 5.2: Eikebrokk and Olsen (2007) framework; IS competences in the SMEs and the role of consultants

Macro-competence	Competencies	Description	Consultant Role (Intermediary)
Define IS Contribution	**Business Process Management**	Design and improve business processes of the organisation.	Consultants assist SMEs by implementing changes to existing business processes.
	Define IS Requirements	Define appropriate business requirements for software applications	Consultants assisted SMEs with choice of accounting package to meet requirements
	Accessing IS Knowledge	Identify appropriate people to seek guidance on IS issues.	Consultants provide information and advice on software and hardware suppliers
Define IS Strategy	**Technology Infrastructure Requirements**	Identify and develop appropriate hardware infrastructure requirements.	Consultants provided information, advice and recommendations on hardware and infrastructure
Exploitation	**Benefits Management**	Explicitly identify, plan and evaluate the benefits derived from IS investments and use.	Consultants aid SMEs to know about the benefits of implementing accounting software
	Managing Change	Make the business and organisational changes required to maximise the benefits of IS.	Consultants assist with change management including changes to processes
	Project Management	Manage project scope, resources and time, through planning, organising and controlling.	Consultants managed the projects in some cases
Deliver Solutions	**Implementation and integration**	Implement and integrate IS that satisfies business needs.	Consultants install and integrate software
	Business Continuity & Security	Provide effective recovery, contingency and security processes to prevent risk of business failure.	Consultants assist and advise SMEs backup procedures for software database
Supply	**Manage IS Supplier Relationships**	Develop value added relationships between the business and IS suppliers (external and internal), including service level agreements and contract management (performance monitoring, problem resolution and negotiating amendments).	Consultants actively sought to build relationships with SMEs
	Staff development	Recruit, train and deploy appropriate staff and ensure technical, business and personal skills meet the IS needs of the organisation.	Consultants provide training on accounting software and accounting in general

Table 5.3: Cragg et al. (2011) competences framework in SMES; IS competences in SMEs and the role of consultants

The next step in the process is to evaluate how the role of consultants relates to these competencies. This step tries to identify how consultants are likely to influence the IS competencies identified. It was already shown that the consultant is best described as an intermediary. Two significant roles under the umbrella of the intermediary role, the 'conduit role' and the 'marriage broker' role are identified. It is noted in these two roles that SMEs overcome the lack of IS skills through consultants. IS skills relate to IS abilities and hence to IS competencies.

When one considers the competency in Process Integration (Eikebrokk and Olsen, 2007) and the Business Process Management competence (Cragg et al., 2011), integrating the software system with the business processes of the firm is very important for any company implementing an accounting system. In some situations, implementing a system requires the organisation to make changes to the way things are done, in terms of their processes and procedures. As in the case of AM some SMEs may want to make changes to the way they operate by implementing a system. This SME was looking to integrate the order processing side of business with the accounting side. The implementation of the accounting system was meant to address this change to their processes. Although the project was not successful and was not completed, it was the consultant who was tasked with assisting the organisation with the changes to their processes. In fact, by implementing the system (Infusion) the process involved in "*doing the books*" had already been changed. This example demonstrates how consultants effectively aid SMEs in combining IS and business knowledge to devise new business processes.

Most SMEs generally manage implementation projects internally, but occasionally, as the consultant from AIF Consulting pointed out, consultants assisted SMEs with

managing implementation projects. This example shows that consultants occasionally demonstrated abilities that relate to the Management of IT competence (Eikebrokk and Olsen, 2007) and the Project Management competence (Cragg et al., 2011). In reviewing the Systems and Infrastructure competence (Eikebrokk and Olsen, 2007) and the Technology Infrastructure Requirements competence (Cragg et al., 2011), all the SMEs had limited knowledge of the infrastructure requirements of their accounting systems. The consultants were the ones that exhibited these abilities by advising the organisations on infrastructure, particularly the hardware and networks needed to operate systems effectively.

Consultants demonstrate abilities associated with the Sourcing Competence (Eikebrokk and Olsen, 2007) and the Accessing IS Knowledge competence (Cragg et al., 2011) by providing specialist services. Dumani used their accountant to assist them in finding a system and to assist with the implementation. TAG also turned to their accountant initially for advice and then to install the system. SPM engaged their consultant based on the recommendation from their accountant.

It may be concluded that in the intermediary role of consultants, '*conduit'* or '*marriage broker*' consultants impact SMEs by influencing IS competencies, either by compensating for the lack of IS competencies or by contributing to the development of IS competencies. It may be argued that since SMEs lack IS competencies they are unable to effectively implement IS on their own.

Consultants possess many specialised abilities that they use to assist SMEs. Therefore, consultants may affect or influence IS competencies (or the lack of) in SMEs. Since SMEs lack IS skills this may suggest that SMEs will also lack IS competencies.

Engaging consultants has become a way of overcoming the lack of abilities. Therefore, from the RBT perspective, consultants help SMEs by influencing various IS competencies, for example, installing software. Once the package is installed and configured consultants train employees of SMEs on how to use the software. It is obvious that SMEs would be unable to train their staff to use the software. By training SMEs' staff, consultants help to combine any existing competencies related to the package or accounting. Consultants also help SMEs to use the software by combining any existing abilities with new ones gained through training to make use of the installed software. It can be concluded that consultants, through the '*conduit'* role or '*marriage broker*' role, affect IS competencies in SMEs whether these competencies are lacking or exist in the organisation.

These preliminary findings relate to the second objective of this study which is to understand the impact of consultants on IS competencies. This area will be further investigated in the second phase of data collection, presented in the following chapter.

5.6 Applying Knowledge-based Theory

Resource based theory, used in the analysis of the preceding section explains the nature of an organisation as consisting of resources which it leverages to sustain a competitive advantage. The knowledge-based view of the firm, a modification of the RBT, tries to explain the nature of the firm from the perspective that firms build and utilise knowledge as a key organisational asset. From this view the reason for the firm's existence encompasses more than profit and a sustained competitive advantage (Nonaka and Toyama, 2005).

In the KBT, firms create knowledge assets that are utilised for varied purposes of the firm. This enhanced view of the nature of the firm is particularly suited to examine the implementation of IS, as it does not assume the necessary prerequisite of a link to profit and sustained competitive advantage. Additionally, the earlier analysis using RBT suggests that consultants contribute to knowledge in SMEs making the KBT an ideal theory to use to examine IS implementation.

This section also borrows from knowledge creation theory (Nonaka and Takeuchi, 1995), to examine the impact of consultants. This theory, adapted from Nonaka and Takeuchi (1995), seeks to explain how companies create knowledge. The theory of the knowledge-creating firm is presented in Figure 5.1. Knowledge creation theory is imbedded in the KBT of the firm and makes use of two forms of knowledge, tacit knowledge and explicit knowledge.

The SECI model (Nonaka and Takeuchi, 1995 and Nonaka et al., 2000) depicted in Figure 5.1 outlines four processes where knowledge is created or transferred within a firm. Although developed from within a large firm context, the SECI process is applied to the IS implementation process and consultant-client interactions in SMEs.

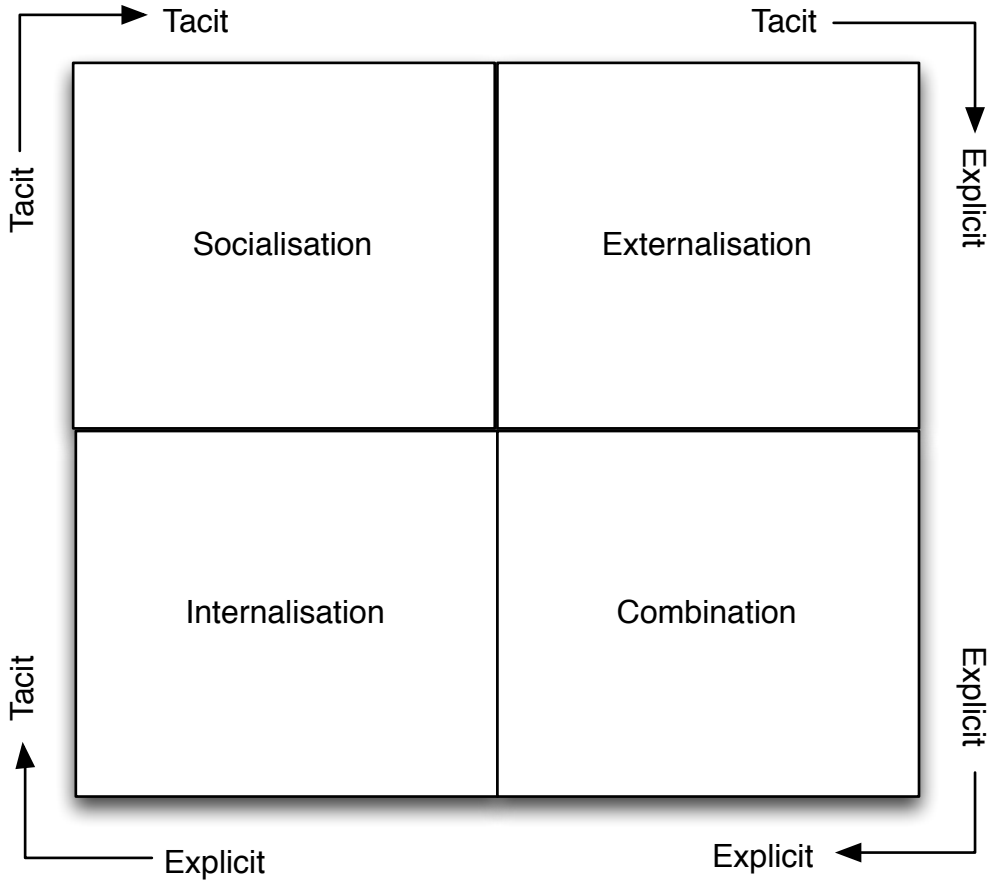

Figure 5.1: Knowledge creation in the firm (adapted from Nonaka et al., 2000)

5.6.1 Knowledge Transfer and Consultants

The KBT of the firm suggests that creation of knowledge assets is important for organisations (Nonaka and Toyama, 2005). The implementation of IS when viewed from this perspective suggests that knowledge creation takes place during consultant-client interactions. Implementing a system is not a simple case of installing the hardware and software but involves knowledge transfer, which results from interaction between people. "*The software system therefore is a technological asset; however people must have the skills and knowledge to harness it into a capability*," (Dawson 2005).

Dawson (2005) contends that knowledge transfer is dependent on communication. Within each of the knowledge creation processes of Table 5.1 some form of

communication usually takes place. For consultants to transfer knowledge and skills to SMEs there must therefore be a '*communication relationship'*. Nonaka and Takeuchi (1995) introduced the notion of '*ba'* as a place where interaction and knowledge is transferred between individuals in an organisation.

Through the SECI process, the consultant-client relationship and interactions, it is expected that knowledge is created and transferred to SMEs. In considering the role of consultant presented so far, the data is analysed to investigate how the role of consultants may lead to knowledge creation in SMEs.

5.6.2 Knowledge and the Interview Data

This data collection phase is exploratory and the questions focus on general themes to understand the process of implementing accounting systems. It is worthwhile to examine the data, to identify any knowledge creation processes that may be evident (Table 5.5 and Table 5.6). The SECI process is more notable from the consultants' data than the SMEs' data. However, there is enough evidence to suggest that a further analysis of knowledge creation may reveal more about the impact of consultants. This is done in the phase-two data collection and analysis presented in Chapter 6.

SECI Process	AIF Consulting	ECR Consulting	AT Consulting
Socialisation *Tacit to tacit knowledge through Common experiences*	Consultant shared technical skills and accounting skills (tacit knowledge) with SME staff through implementation experience	Consultant shared technical skills (tacit knowledge) with SME staff through implementation experience	Consultant shared technical skills and accounting skills (tacit knowledge) with SME staff through implementation experience
Externalisation *Tacit knowledge to explicit knowledge*	Consultant provided solutions and recommendations for SMEs' accounting needs and problems by turning tacit knowledge to explicit	Consultant provided solutions and recommendations for SMEs' accounting needs and problems by turning tacit knowledge to explicit	Consultant provided solutions and recommendations for SMEs' accounting needs and problems by turning tacit knowledge to tacit
Combination *Explicit knowledge to explicit knowledge*	Consultant trained and assisted SME staff to generating reports (explicit knowledge to explicit knowledge) from accounting database	Consultant trained and assisted SME staff to generating reports (explicit knowledge to explicit knowledge) from accounting database	Consultant trained and assisted SME staff to generating reports (explicit knowledge to explicit knowledge) from accounting database
Internalisation *Explicit knowledge to implicit knowledge*	Consultant provided training to SME staff on accounting software. Staff gain implicit knowledge from the explicit knowledge provided in training	Consultant provided training to SME staff on accounting software. Staff gain implicit knowledge from the explicit knowledge provided in training	Consultant provided training to SME staff on accounting software. Staff gain implicit knowledge from the explicit knowledge provided in training

Table 5.4: Knowledge transfer and SECI process during IS implementation – Consultants

SECI Process	Southern Manufacturing	Ali Manufacturing	The Arthur Group	Dumani
Socialisation *Tacit to tacit knowledge through Common experiences*	-	The financial controller gained tips and tricks and shortcuts from interacting with the consultant. As well as how to improve communication skills	-	-
Externalisation *Tacit knowledge to explicit knowledge*	SME got software recommendation and solution (knowledge about solutions) from consultant.	SME got software recommendation and solution (knowledge about solutions) from consultant.	SME got software recommendation and solution (knowledge about solutions) from consultant.	SME got software recommendation and solution (knowledge about solutions) from consultant.
Combination *Explicit knowledge to explicit knowledge*	SME is able to generate various reports from the accounting database (explicit knowledge in database to explicit knowledge in reports)	-	-	-
Internalisation *Explicit knowledge to implicit knowledge*	SME was trained on the use of the accounting software (explicit knowledge provided in training converted to tacit knowledge on using the software)	-	-	SME was trained one-on-one session on the use of the accounting software (explicit knowledge provided in training converted to tacit knowledge on using the software)

Table 5.5: Knowledge transfer and SECI process during IS implementation – SMEs

The consultant from AT consulting explained that SMEs learn business best practices and the importance of government sales tax (GST) from consultants. He explained:

> *"I think business best practice, really is what we would like to think, ...they learn that this is serious, and that we do want to do things properly and with the right information they can make decisions. Because a good accounting information system is a decision support system really, and that's what we would like to get them involved in."*

In relation to accounting knowledge the consultant further explained:

> *"...we definitely teach them the importance of the GST side of it, it's really important. Understanding GST, and understanding entertainment tax."*

The consultant also notes that he conducted training; including one-on-one training with clients. He highlighted that they would go on-site to "*go through issues*" with the client.

The owner-manager of Dumani stated that the sign of an effective consultant was when the client (SME) was able to apply what the consultant had taught. This was in relation to the software and its use in the company. The financial controller of AM noted that he had gained some technical knowledge and know-how (i.e. the use of software short cuts) from interacting with consultants. On the current project he noted that he learned the importance of good communication skills and how to describe in detail the problem or situation existing in the organisation.

Although not exhaustive or detailed, these examples from the interviews serve to highlight that knowledge is transferred and learning takes place during the consultant-client interactions. Therefore, in the role of intermediaries, ('*conduit'* and '*marriage broker*'), it may be argued that consultants facilitate the creation or transfer of knowledge to SMEs. The knowledge created or transferred is in relation to the use of

the implemented system, the accounting function in the company and other general business areas. Considering the implementation process as learned from the case data, consultants influence SMEs by facilitating the initial flow of knowledge to SMEs (Figure 5.2).

An individual, on the other hand, may gain knowledge directly from the consultant via interactions with him. Knowledge creation may occur through socialisation, combination and internalisation on the part of the individual. The individual (and consultant) through the externalisation process may transfer knowledge to the organisation.

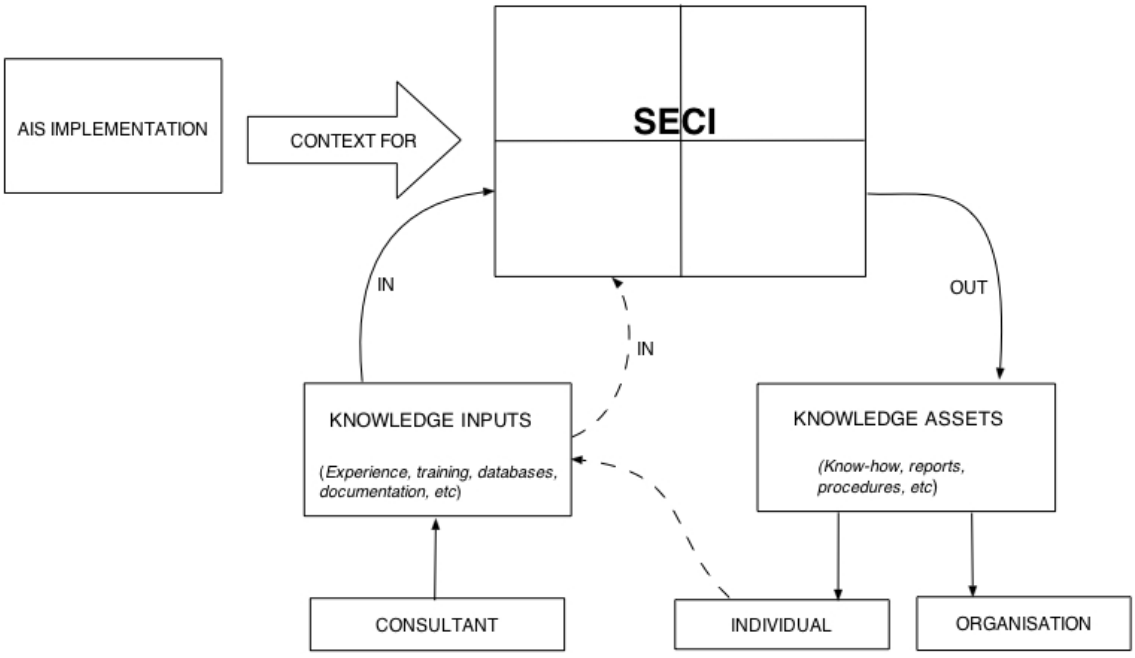

Figure 5.2: How consultants transfer/create knowledge in SMEs

At this stage it may be concluded that consultants have a significant impact on knowledge assets in SMEs.

5.7 Conclusions From Analysis of Findings

5.7.1 The role of consultants

It has already been shown that the role of consultants is best described as intermediary, which can be understood in two ways: (i) consultants as 'conduits' and (ii) consultants as 'marriage brokers'. Consultants fulfil this intermediary role when they embark on implementing accounting software and by assisting SMEs to utilise the software. As part of the entire engagement and implementation process consultants carryout a variety of tasks and duties that aid in the creation/transfer of knowledge as well as compensate for IS competencies. From the SME case, evidence has shown that when consultants provide technical IS skills to SMEs, they are in fact substituting their skills for the SMEs' lack of expertise (IS technical knowledge and skills) and its inability to implement and integrate software on their own.

Therefore, by carrying out the various tasks and duties required to implement IS in SMEs, consultants compensate for missing organisational IS competencies. In addition, consultants, by being part of the implementation process, and fulfilling the duties of a consultant, act as knowledge providers and become a vital part of SMEs' knowledge creation process. Which ultimately aid SMEs to create individual and organisational IS knowledge assets.

Consultants' impact on IS knowledge assets and IS competencies in SMEs have been highlighted in preceding sections. Combining what has been discussed so far on the intermediary role of consultants, IS knowledge and IS competencies, it is proposed, that the intermediary role of IS consultants is to:

1. Transfer or create IS knowledge assets in SMEs at the individual and organisational levels.
2. Compensate or overcome the lack of organisational IS competencies in SMEs.

By combining RBT and KBT the intermediary role of the IS consultants is described as transferring or creating IS knowledge assets and compensating or overcoming IS competencies in SMEs (Figure 5.3).

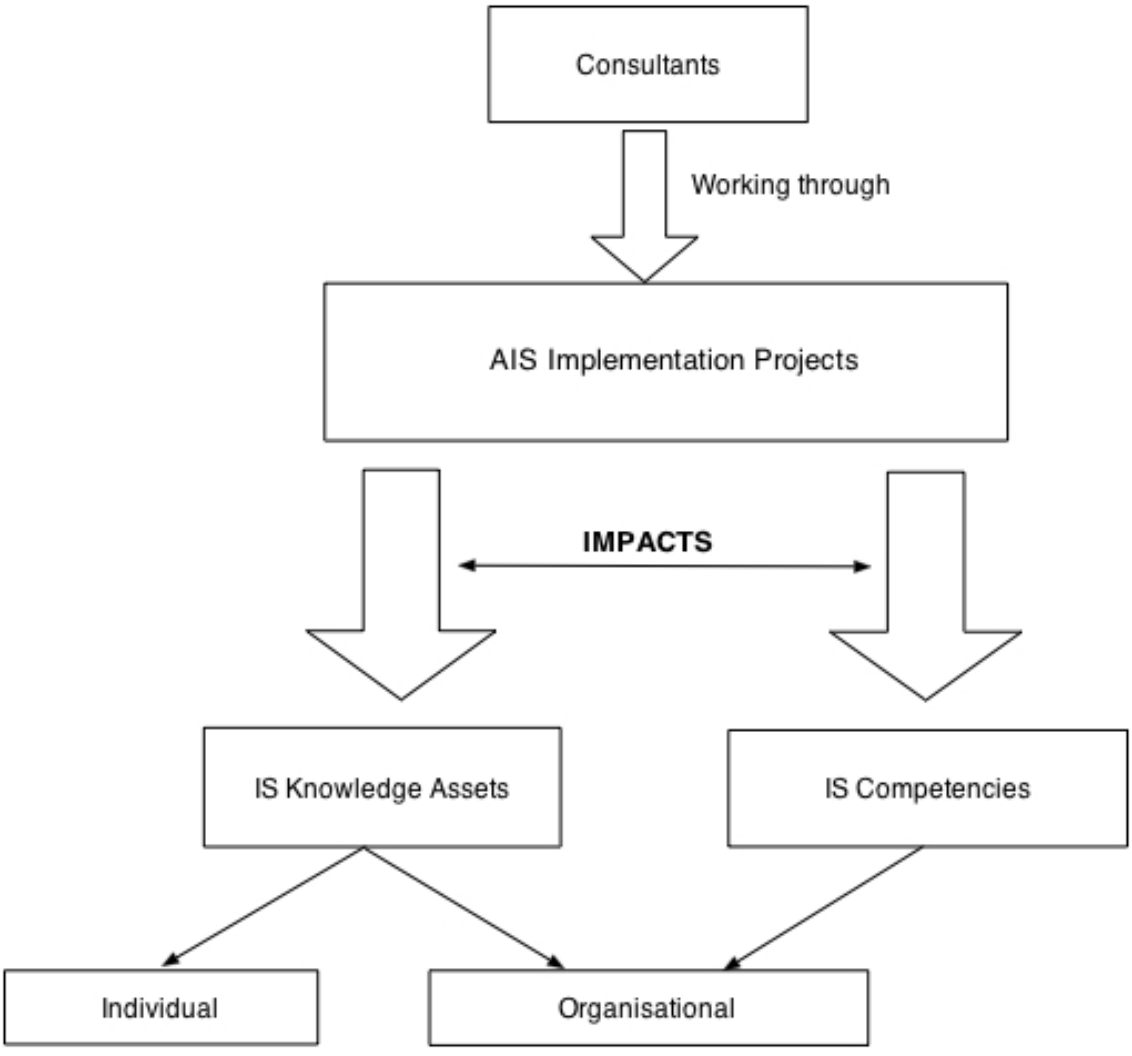

Figure 5.3: The role of IS consultants expressed using RBT and KBT

5.7.2 Consultants' impact on IS Success

This section examines the existence of IS knowledge assets and IS competencies in SMEs and explores how these may affect IS success. For the purposes of this analysis IS success as a construct is defined by: (i) Use – use of the system; (ii) User Satisfaction – users are satisfied with the system; (iii) Individual Impact and (iv) Organisational Impact (Thong, 2001).

5.7.2.1 IS Knowledge Assets and IS Success

It has already been proffered that consultants aid SMEs by creating or transferring knowledge at the individual level and ultimately creating knowledge at the organisational level. Knowledge assets generally consist of knowledge recently created such as routines and know-how; and concepts and techniques (Nonaka and Toyama 2005). In the context of IS implementation, the organisation gains knowledge and know-how regarding the use of the implemented software. In other words consultants transfer knowledge of how to use the system to end-users of the system. Delone and McLean (2003) point out that use of a system precedes user satisfaction in a process sense, but positive experience with use of the system leads to greater satisfaction in a causal sense. Having learned how to use the system, it is expected that users will be more willing to use the system and more likely to have a positive experience using the system. In addition to the basic use of the system, end-users may also gain knowledge of tips and tricks from consultants on how to use the system.

Apart from using the system to input data, consultants facilitate end-users in SMEs to extract information from the system. This is an important aspect of the implementation. From the interviews conducted, both SMEs and consultants highlight the importance of

extracting information from the system or generating reports. If users are able to obtain useful information from the system, they are more likely to be satisfied with the implemented system (Delone and McLean 1992). Therefore, knowledge at the individual and collectively at the organisational level should have a positive impact on IS success.

As a consequence of affecting IS knowledge assets in SMEs, consultants transform SMEs from lacking IS knowledge to effectively possessing knowledge. Ultimately, through this process, there should be a positive influence on IS success in SMEs.

5.7.2.2 Organisational IS Competencies and IS Success

The competency in Process Integration (Eikebrokk and Olsen, 2007) and the Business Process Management competence (Cragg et al., 2011) involve the integration of the implemented software with the business processes of the firm. If consultants are able to aid SMEs in utilising this ability, SMEs are better able to align IS investments with business processes and informational needs. If the organisation's needs are being met by the IS, then users should be satisfied with the system and use it more. Hopefully, this should lead to an impact on the organisation (Delone and McLean 1992).

The Systems and Infrastructure competence (Eikebrokk and Olsen, 2007) and the Technology Infrastructure Requirements competence (Cragg et al., 2011) require an understanding of the infrastructure needed to implement software. This includes computing hardware, software and network infrastructure needed to implement a working system. If SMEs are able to make use of this ability, then it is likely that the implemented IS will be useable and have a positive impact on IS success. If consultants

can aid SMEs to utilise abilities associated with the Management of IT competence (Eikebrokk and Olsen, 2007) and the Project Management competence (Cragg et al., 2011), SMEs will be able to derive benefits from the effective use of information derived from the implemented system. According to the Delone and McLean (1992) IS success model, use and benefits are key parts of IS success.

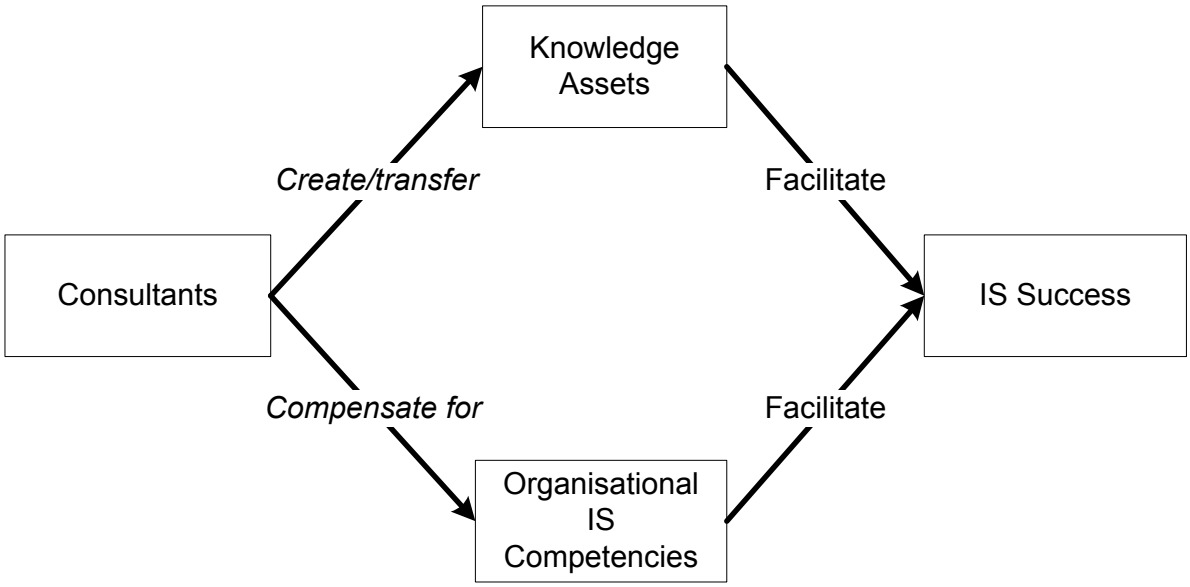

Figure 5.4: How IS consultants influence IS success through the creation of knowledge assets and competencies

5.7.3 Consultant Attributes

In earlier analysis, exploring the effectiveness of consultants, several attributes of consultants emerged. These attributes, presented in Table 5.8 are further discussed in this section.

Consultant Attribute	Skill Label	Brief Skill Description
Hard Skills	Technical IS skills	Ability to effectively install, configure, customise and integrate software into the SME environment
	Project Management	Ability to manage the implementation of IS projects and to achieve the client's goals on time and on budget
	Knowledge about solutions	Ability to provide effective analysis of SME problems and to make appropriate recommendations on hardware, IT infrastructure, and software
Soft Skills	Communication skills	Ability to share information with SMEs
	People skills	Ability to develop and maintain relationships with SMEs
Teacher/Trainer skills	Knowledge transfer skills	Ability to transfer knowledge and technical skills to SMEs

Table 5.6: Summary of consultants' attributes

5.7.3.1 Hard Skills

Hard skills are generally teachable abilities that can be defined and are usually measured. For the purpose of this study, technical IS skills, project management skills and knowledge about solutions are considered hard skills. In the context of the case data technical IS skills refer to consultants' ability to effectively install, configure, customise and integrate software into the SME environment (Freedman, 2000). Also in the context of this study, knowledge about solutions refers to the ability of consultants to provide effective analysis of SME problems or situations and to make appropriate recommendations on hardware, IT infrastructure, and software. Freeman (2000) refers to providing recommendation as advisory skills. Project management skills refer to the

ability of consultants to manage the implementation of IS projects and to achieve the client's goals on time and on budget.

So far, the results of this study suggest that consultants compensate for a lack of abilities (IS competencies) in SMEs during the implementation of accounting software. Building on that argument it is suggested that as consultants make use of hard skills they are in fact compensating for the various IS competencies lacking in SMEs.

5.7.3.2 Soft skills

In the context of the case data, communication skills refer to the consultants' abilities to share information with SMEs (Freedman, 2000). Consultants are expected to share information regarding the software solution and to give advice to clients. They are also expected to share information about the project with their clients. As the case evidence suggests, consultants are required to build a '*communication relationship*' with clients so that if problems arise these should be clearly communicated to clients.

One can assert that effective communication is important in any IS project. It is a key channel through which knowledge is transferred from consultant to client. Communication is very effective in transferring knowledge from the consultant to the individual and to the organisation as a whole. Therefore, consultants with effective communication skills should impact both individual and organisational knowledge assets.

Dawson (2005) suggests four enablers of knowledge transfer during communication: (i) Interactivity, (ii) Bandwidth, (iii) Structure, (iv) Re-usability and (v) Customisability.

Interactivity relates to the flow of information between people or organisations, to the extent to which the information flow is two-way as opposed to one-way. Knowledge is developed through discussion and interaction among people (Dawson, 2005 and Nonaka and Toyama, 2005). Dialogue is a basic, but effective model of interactivity. Therefore when consultants and clients interact and dialogue during IS implementation, knowledge is created and transferred in both directions.

In reference to the interviews conducted, several communication channels are utilised by consultants. These included documents, meetings, training, workshops and coaching. Table 5.8, adapted from Dawson (2005), shows the knowledge transfer capability of the various communication channels.

	Interactivity	**Bandwidth**	**Structure**	**Reusability**
Documents	Nil	Low	High	High
Meetings	Very High	Very High	Low-Medium	Low
Workshops	Very High	Very High	Medium	Low
Training	Medium	High	High	Medium

Table 5.7: Mediums of knowledge transfer (adapted from Dawson 2005)

People skills refer to consultants' abilities to develop and maintain relationships with SMEs. It is important, as pointed out by the consultants from ECR Consulting, to have a good relationship with the client not only during the project but also in the long term. The consultants also contend that SMEs were not always willing and committed to forming relationships with consultants. Nonetheless, consultants attempted to build relationships with clients. The consultant from AIF Consulting also highlighted the importance of building effective relationships with clients.

It has been discussed previously that consultants are able to influence IS knowledge and IS competencies in SMEs by establishing a working relationship.

5.7.3.3 Teacher/Trainer Skills

Teacher/trainer skills refer to a consultants' ability to primarily transfer knowledge as well as technical skills to SMEs. This ability may manifest itself through formal and informal training sessions, workshops and even one-on-one personal encounters with the responsible IS person in the SME. According to the KBT this ability is important as it is expected to positively influence the creation of knowledge assets in SMEs. Consultants with effective teaching/training abilities should contribute to the transfer of knowledge to SMEs thereby effecting positive change in the creation of individual knowledge and organisational knowledge.

As evidenced by the lack of citations there appears to be a dearth of research on the attributes of effective consultants. However, in this study, the attributes of consultants emerge as an important theme suggesting that it is worth further research. All that has been presented thus far highlights the impact that consultants have on SMEs.

5.7.4 The Impact of Consultants on SMEs

In this first phase of data collection and analysis several themes have emerged. In this exploratory stage the emphasis is on understanding and identifying key themes that shed light on the impact of consultants during the implementation of accounting systems. The three key themes to emerge are IS knowledge assets, IS competencies and consultant attributes. In order to develop a better understanding of the impact of

consultants, these themes coalesce to provide a high-level description of the impact of consultants.

It can be concluded that if SMEs possess IS knowledge assets and IS competencies it is likely to result in successful IS for the organisation. It is further suggested that the attributes that consultants possess might have an impact on the effectiveness of consultants. Figure 5.4 is enhanced to give Figure 5.5.

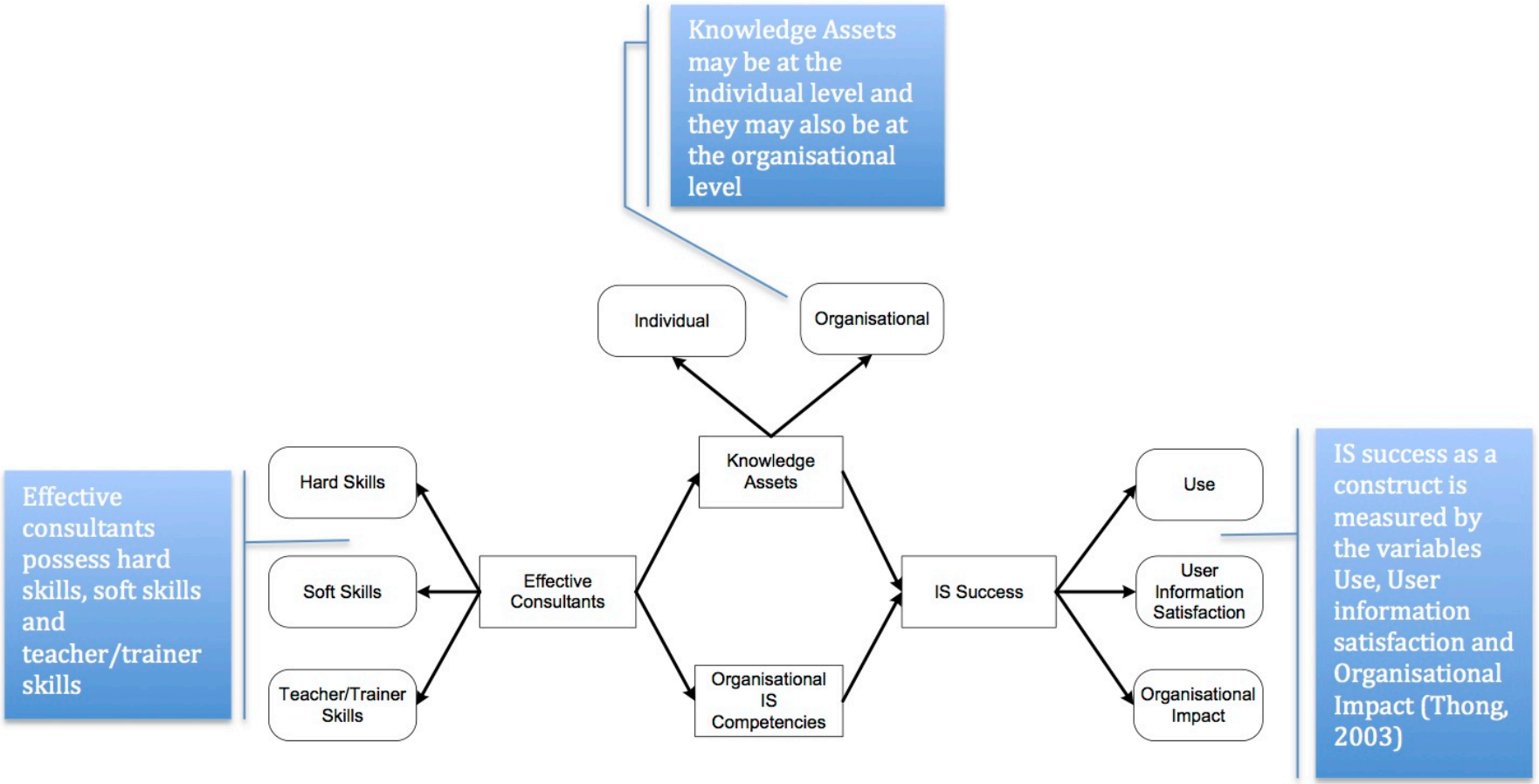

Figure 5.5: High-level model of the role and impact of consultants

Figure 5.5 suggests that consultants with particular attributes make a significant impact on the creation of knowledge assets at the individual as well as organisational level. In addition, consultants also impact on organisational IS competencies. It is possible to hypothesise that relationships exist between effective consultants and IS knowledge and IS competencies. For example, one could hypothesise that consultants possessing teacher/training skill are likely to have a positive effect on IS individual knowledge assets. Furthermore Figure 5.5 suggests that if SMEs possess IS knowledge (individual and organisational) as well as have organisational IS competencies then IS success is possible. Again, it may be possible to hypothesise about these relationships. For example, one could state that individual IS knowledge assets have a positive effect on IS success in terms of use of the implemented software. However, in considering the aim of this study to examine how consultants affect SMEs, this study will proceed to explore how IS knowledge assets are created and what IS knowledge is created during the implementation process. It will also seek to understand what organisational IS competencies are needed during implementation and how SMEs come to possess such IS competencies.

Based on the explanations, reasons and results presented after the exploratory stage of this study, it is suggested that the role of IS consultants is best understood as intermediary (‘*conduit’* and ‘*marriage broker*’). Through these roles, the impact of consultants SMEs is best described and understood through the impact that consultants have on IS knowledge assets and IS competencies. Consequently, the focus of this study will shift to understanding the effect that consultants have on IS knowledge assets and IS competencies (Figure 5.6). This shift will also seek to address the second and third objectives of this study: to determine the impact that IS consultants have on IS knowledge by utilising the explanatory power of KBT and to determine the impact that

IS consultants have on IS abilities SMEs by utilising the explanatory power of RBT.

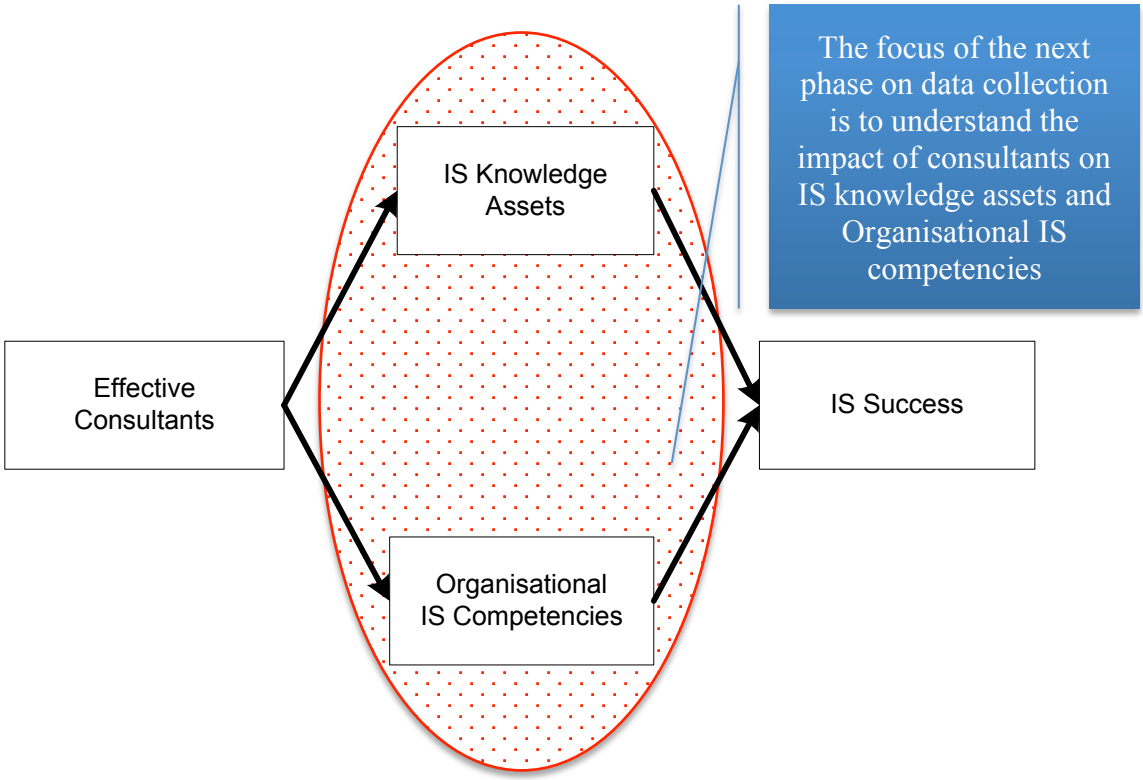

Figure 5.6: Focus of the next phase of data collection

5.8 Summary

It has been proposed, based on the interview data that the impact of IS consultants is explained by Figure 5.5, which suggests that the key purpose of the intermediary role of IS consultants, is to influence IS knowledge and IS competencies in SMEs. The fundamental nature of most SMEs is defined as *'resource poor'* and lacking knowledge, therefore consultants help SMEs to overcome their '*resource poor*' state by building knowledge and abilities as well as compensating where knowledge and ability is lacking. By so doing, consultants in effect '*transform*' SMEs so they are able to achieve successful implementations that would be impossible on their own.

This creates the concept that the relationship between SMEs and consultants is more like a partnership. In fact, the SMEs interviewed have an on-going relationship with their consultants especially where the consultant also wears the hat of accountant. The on-going relationship plays a crucial part in the impact that consultants may have on SMEs. In the short term, and specifically, in relation to implementing accounting systems, consultants are important if the organisation is to successfully implement the system. This is already known from previous research notably the work of Thong (1994), (1997), and (2001). However, what is pursued in this study is the importance of IS knowledge and IS competencies and how consultants influence these processes.

It is suggested in Figure 5.5 that the existence of IS knowledge and IS abilities influences IS success. When consultants successfully '*transform*' the nature of SMEs to knowledgeable and competent they also increase the chances of IS successful. Using arguments similar to those put forward by Delone and McLean (1992) it is shown that knowledge and competencies are likely affected by IS success. For this study IS success

is conceived along three dimensions:

1. Use - use of the system
2. User Information Satisfaction - satisfaction with the information derived from the system
3. Organisational Impact/Benefit - the way the IS affects the business as a whole (Thong, 2001).

In considering the nature of SMEs as lacking IS knowledge and IS competencies, one can contend that without these characteristics is difficult for an organisation to fully experience IS success. In order for employees of the organisation to use the system, they will require knowledge, particularly knowing what to do and how to do it. For example, once the accounting system is installed, operators of the software at all levels from data entry to reporting, need to know what to do in order to input data and extract data from the system. They also need to know how data entry is done and what data is coded where sand employees also need to know how to produce reports to extract information. In order for the system to be used effectively there must be an input of knowledge. Conversely, for the information extracted from the system to meet the needs of the user, the user not only needs to know what and how to run the reports, but also how to interpret and make sense of the information. It must be reiterated that knowledge is important for users to be satisfied with the information from the system. In addition, users need to possess the ability to apply the information in the making of decisions to gain value from it. If the organisation is able to manage its IT system there is likely to be a positive impact from implementation.

The information outlined in Figure 5.5, further suggests that the '*attributes*' of consultants are important in order for knowledge and competencies to be developed in

SMEs and ultimately for IS success to ensue. Specific attributes of an effective consultant emerge from the data. These skills include technical skills and ability, people skills and knowledge transfer skills, which significantly impact on IS knowledge and IS competencies in SMEs.

It can be argued that since SMEs suffer from a lack of IS knowledge and IS competencies they need the assistance of external experts to provide these essential services. Therefore, consultants with adequate technical skills impact SMEs by providing or selling their technical abilities thus affecting the knowledge and abilities of SMEs. IS success is also affected as technical ability is needed in order for consultants to be able to implement a working system in the first place. It has also been shown that consulting is a business that revolves around people and the relationships that are developed. Consultants have to possess the requisite people skills in order to successfully impact the knowledge and competencies of the organisation, as well as to achieve IS success. It usually takes several encounters between consultant and SME for the system to be effectively implemented and further utilised by the organisation. It has been argued that a consultant's strong relationship with employees and management of SMEs is useful for successfully fulfilling his role. Finally, in order for the knowledge and competencies of the organisation to grow or improve, learning needs to take place. There needs to be a flow of knowledge from the experts to SMEs. Consultants with skills in teaching and training are able to transfer knowledge and skills to SMEs and contribute to knowledge and competencies.

It may then be concluded that consultants are essential for SMEs, not only to implement IS successfully as previous IS research has shown, but also to help SMEs to create IS knowledge. In addition to the creation of IS knowledge, consultants compensate for a

lack of IS competencies in SMEs.

In the Chapter 6 the themes of IS knowledge and IS competencies are further explored. The creation of knowledge is investigated to identify how the knowledge assets and IS competences that are affected during the implementation of accounting systems.

6 Phase Two Design

6.1 Introduction

This chapter presents the second phase of data collection and the focus is on IS knowledge assets and organisational IS competencies (see Figure 5.6 in Chapter 5). Knowledge assets and competencies emerge as themes of interest from the exploratory phase-one data. The analysis, presented in Chapter 5, suggest that the impact of consultants is best understood by examining the creation/transfer of IS knowledge and the presence of IS competencies in SMEs.

In this chapter, the aims and objectives of Phase 2 are discussed. The design of the study, for this phase, is also discussed along with the chosen method used to generate data. The design of the second phase of data collection addresses the second research question of the study: how can theories of the firm be used to explain the impact that IS consultants have on SMEs? Specifically, how can the effect of consultants on SMEs be explained using KBT? And, how can the effect of consultants on SMEs be explained using RBT and focussing SMEs' abilities? The design also takes into consideration the findings and results from Chapter 4 and is designed to further investigate the findings surrounding IS knowledge assets and IS competencies presented in the previous chapter.

This phase of data collection began with consultant cases and then proceeded with SME cases. This chapter will describe how the consultant cases are used to demonstrate the impact consultants have on SMEs and to describe how the SME cases are used to provide a level of confirmation.

Chapter Six includes the following sections:

6.2 Research Objectives

In Chapter Three the research questions posed by this study are presented along with two major objectives. Chapters 4 and 5 are used to address the first question, which relates to the role of the consultant and partially addresses the Question 2 by introducing RBT and KBT as ways to view and interpret the data. The main focus of this chapter centres on the second research question: How can theories of the firm be used to explain the impact IS consultants have on SMEs? How can the effect of consultants on SMEs be explained using KBT? And, how can the effect of consultants on SMEs be explained using RBT?

To answer the above question, and based on the findings presented in the previous chapter, the following guiding questions are posed:

1. How does consultant engagement affect IS knowledge assets in SMEs during the implementation of accounting systems?
2. How does consultant engagement affect organisational IS competencies in SMEs during the implementation of accounting systems?

The objectives of the above questions are to:

1. Explain the impact of consultants on IS knowledge assets in SMEs
2. Explain the impact consultants have on organisational IS competencies in SMEs

3. Derive propositions related to the impact of consultants on SMEs, particularly IS knowledge assets and IS competencies.

In order to understand the impact of consultants on SMEs, this chapter will begin to build propositions on how SMEs are likely to be affected by consultants during the implementation of accounting systems. On completion of Phase 2, Phase 3 will be used to test/verify the propositions developed during this phase. Figure 6.1 shows how the findings from the data collection of Phase 1 of are used to direct this phase.

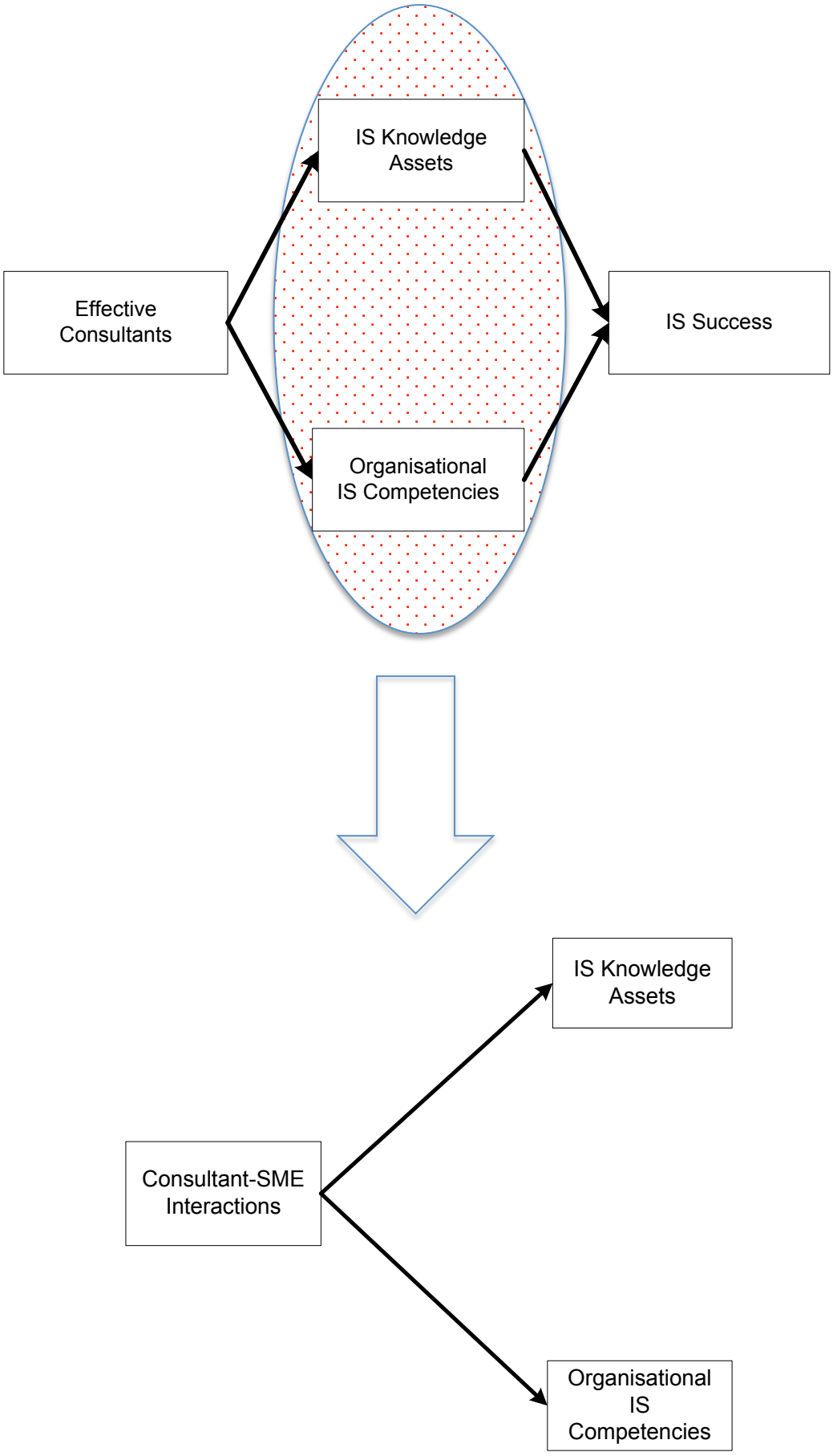

Figure 6.1: Focus of phase-two data collection

6.3 Research Method

In Chapter 3, the method to generate data for this study is presented and the case study method is chosen. It has been argued that the case study approach is the most appropriate method given the research questions posed as well as the aims and objectives of the study. In this phase the questions posed again suggest that the case study approach will be the most appropriate. Hence, this phase uses case studies to further develop the emergent themes of IS knowledge assets and IS competencies.

The results of the first phase of data collection suggests that consultants have a likely impact on IS knowledge and IS competencies through their role as intermediaries. Therefore, this phase of data collection is designed to first investigate consultants and establish in more detail how they affect IS knowledge on one hand and IS competencies on the other. Having achieved this purpose SME interviews are used to confirm the findings from the consultant cases.

In keeping with the criteria used for Phase 1, consultants are considered representative cases if they indicate on their websites that they are consultants. They are also considered representative cases if software vendors indicate that the company/person is a consultant for the software. Additionally, consultants have to be actively working, as defined by this study, with SMEs having less than 50 employees. The consultants are chosen by first obtaining a list of accounting packages that have a version of the software specifically for SMEs. A list of consultants for each package is then obtained from each software vendor's website. Using this list, consultants are randomly chosen, contacted by phone and invited to partake in the study. SMEs are considered representative cases if they meet the definition of having fewer than 50 employees and

have implemented their accounting software with the aid of a consultant. The SMEs that participated in this phase are recruited conveniently using industry contacts.

6.3.1 Interview Protocol

A research protocol is also developed for this phase of data collection (see Appendix B). The protocol has two sections, one addressing IS knowledge and the other addressing IS competencies. Each section consists of survey type questions followed by open-ended semi-structured interview questions designed to probe further into the areas of interest.

6.3.1.1 IS Knowledge Assets

The survey type questions used to investigate knowledge assets are derived from Chou and He (2004) and their work on knowledge assets. The questionnaire is deployed as part of the overall interview process and is provided in Appendix B. Chou and He (2004) studied knowledge assets as inputs to the knowledge creation process. It is noted however that in this study knowledge assets are considered as outputs of the knowledge creation process. This has an effect on the various knowledge assets chosen, and applicable, to this study. Chou ad He (2004) explored four knowledge areas: experiential knowledge assets, routine knowledge assets, conceptual knowledge assets and systemic knowledge assets. The items that were deemed applicable from the Chou and He (2004) study were chosen based on the idea that knowledge is built and transferred from interactions among people (Nonaka, et al., 2000; Nonaka and Toyama, 2005; Dawson, 2005).

Experiential knowledge assets are tacit knowledge gained through shared hands-on or working experience among employees. This knowledge can also be shared between the

members of an organisation and its customers, suppliers and affiliated firms (Chou and He, 2004). Examples of experiential knowledge assets are skills and know-how that individuals gain from their working experience.

Chou and He (2004) considered ten items, in their empirical study, under the umbrella of experiential knowledge assets. Of the ten items the researchers studied, five are applicable to the consultant-client situation and IS implementation in SMEs. The five experiential knowledge assets explored by this study are:

i. The hands-on experience gained by employees.
ii. The accounting experience consultants shared with employees.
iii. The employees' ability to improvise when using the software.
iv. The trust that employees had in consultants.
v. The enthusiasm of employees.

Systemic knowledge assets are systematised and packaged explicit knowledge. These consist of technologies, product specifications and manuals. According to Chou and He (2004) these kinds of knowledge assets are visible and tangible and are easily transferred. In addition, Chou and He (2004) considered eleven items under the group systemic knowledge assets. Two of these items are identified as applicable to the consultant-client situation surrounding the implementation of IS in SMEs:

i. The software documentation and material provided to employees.
ii. The access employees have to the data stored in accounting database.

Routine knowledge assets are tacit knowledge embedded and regulated in the actions and practices of the organisation. Examples of routine knowledge assets are know-how, working practices, organisational culture, and organisational routines for carrying out

day-to-day business (Chou and He, 2004). The researchers considered ten items under routine knowledge assets. Three of these items are identified as applicable to IS implementation in SMEs:

i. The accounting know-how employees gained that allow them to carryout day-to-day activities.
ii. Employees' understanding of the importance of knowledge in routine operations.
iii. Employees' ability to explore new knowledge on their own.

Conceptual knowledge assets are explicit knowledge gained through images, symbols and languages. These kinds of knowledge assets are based on the perceptions held by customers and employees of the organisation and include product concepts, design and brand equity. Brand equity represents the perceptions of customers while designs are what the members of the organisation perceive (Chou and He, 2004).

From the point of view of IS implementation, the perception of employees about the software may be of interest. However, given that the focus of conceptual knowledge assets is to address concerns such as what products to develop and the specific design features of the products, it is felt that conceptual knowledge assets are not applicable to the consultant-client situation. Therefore, following the analysis of the items used by Chou and He (2004), eleven items in total are chosen as applicable to SMEs and IS implementations.

6.3.2 Organisational IS Competencies

Two IS competencies frameworks were used to collect data. The interviews commenced with a short survey based on the Eikebrokk and Olsen (2007) framework followed by

in-depth interviews based on the Cragg et al. (2011) framework. The survey questions were used at the start of the interviews to gain an idea of the areas (competencies) to focus on during the in-depth interviews. So as not to have an overwhelming survey it was decided that the Eikebrokk and Olsen (2007), which grouped it competencies in three macro competencies, would best serve this purpose. Once the key areas (competencies) were noted, the in-depth interviews began by focusing on the identified key competencies, after which it proceeded to discuss the other competencies.

It was also felt that this approach was ideal since both frameworks relate to each other with the Cragg et al. (2011) framework being more comprehensive and detailed. This framework consisted of 22 competencies and included the competencies found in the Eikebrokk and Olsen (2007) framework.

6.3.2.1 The Eikebrokk and Olsen (2007) IS Competences Framework

The survey type questions used to investigate organisational IS competencies are derived from the framework of Eikebrokk and Olsen (2007). This framework has been previously introduced in Chapter 5 and is presented here in Table 6.1.

The Strategy and Vision group of competencies looks at the ability of SMEs to recognise the importance of understanding the strategic potential of IS, in particular accounting software, as well as the ability of SMEs to perform strategic planning. Two competences in this category used by Eikebrokk and Olsen (2007) are adapted for use in this research. Sourcing and alignment looks at the organisation's ability to secure access to the relevant competencies inside or outside of the organisation as well as the organisation's ability to combine and use available competencies. Sourcing and alignment therefore considers the relationships that exist between the organisation and

its business partners. The IT Business Process Integration group of competencies deals with the organisation's ability to integrate IT and business knowledge to devise new business processes. This includes the ability to manage IT and the associated infrastructure needed to operate it.

		Competence (Eikebrokk and Olsen, 2007)	Description
Strategy and Vision	**Concept of AIS**		
	1	Knowledge of how AIS can be of value to the business	SMEs gain knowledge of the value of AIS to the business
	2	Knowledge of how competitor(s) use AIS to support similar business areas	SMEs gain knowledge of how competitors use AIS
	3	Have a good understanding of the accounting software	Gain a very good understanding of accounting software and its value
	Strategic Planning		
	1	Knowledge of strategic planning	SMEs gain knowledge of strategic planning
	2	Well-developed set of strategic planning techniques	SMEs learn on how to develop a set of strategic planning techniques
	3	Have a good understanding of strategic planning	Gain a good understanding of strategic planning
Sourcing and Alignment	**Sourcing Competencies**		
	1	Knowledge on outsourcing of activities to other companies	SMEs gain knowledge about how other companies use outsourcing
	2	Knowledge on how to use competencies in business partners	SMEs gain learn how to use competencies in their business partners
	Alignment Competencies		
	1	Business and IT managers agree on how IT contributes to business value	Consultants help business and IT managers agree on how IT contributes to business value
	2	There is effective exchange of ideas between business people and IT people.	Consultant aid effective exchange of ideas between business people and IT people
	3	Good at using of competencies they already have	Consultants assist SMEs in using the competencies they already have
	4	Good at using competencies represented in business partners	Consultants help SMEs use competencies of their business partners
	Competencies in Process Integration		
IT Business process Integration	1	Working with the impact of the AIS on business processes	SMEs are able to work with the impact of AIS on business processes
	2	Good at reorganising work to utilise new AIS	Consultants assist SMEs in reorganising work to utilise new AIS
	Management of IT		
	1	My company's IT resources are now effectively managed	Consultants assist SMEs to effectively manage IT resources
	2	Achieve anticipated benefits of AIS investment	SMEs gain anticipated benefits from AIS investments
	System Infrastructure		
	1	Infrastructure is flexible in relation to company's future needs	Consultants ensure that the systems infrastructure is flexible
	2	The IT systems make it possible to effectively cooperate electronically with business partners	Consultant assist SMEs to utilise system to effectively cooperate electronically with business partners

Table 6.1: Items used to evaluate IS competencies and their description (Eikebrokk and Olsen, 2007)

The Cragg et al. (2011) IS Competences Framework

The semi-structured questions used in the interview to probe further into organisational IS competencies were derived from the Cragg et al. (2011) framework, which was introduced in Chapter 5. The framework consists of twenty-two competences grouped into six 'macro-competencies' (Table 6.2). The six 'macro-competencies' may also be mapped onto the Eikebrokk and Olsen (2007) framework (Table 6.3).

Business and IS strategic thinking (Cragg et al., 2011) is the first competency group or macro competency to be considered. This maps to the Strategy and Vision group of the Eikebrokk and Olsen (2007) framework. Organisations possessing these abilities are able to identify and evaluate the potential opportunities from using accounting software. This includes areas such as the ability to innovate using the software; the ability to specify a business case and investment criteria for the software, and the inclusion of IS in business strategy.

The organisation's ability to define the contribution of the IS (Cragg et al., 2011) is also discussed during the interview. This group of competencies relates to the sourcing and alignment group of competencies in the Eikebrokk and Olsen (2007) framework. It involves the organisation's ability to align IS with business priorities; its ability to design and improve its business processes, its ability to define the requirements of the system and its ability to identify appropriate people to get information and guidance on IS issues.

Another macro competency or group of competencies considered was the SMEs ability to define the IS strategy (Cragg et al., 2011). This group of competencies also relates to the sourcing and alignment group of competencies in the Eikebrokk and Olsen (2007)

framework. The ability to define the IS strategy competency looks at the software sourcing strategies of the organisation, the IS acquisition process and the ability of the organisation to define the technology infrastructure requirements.

The exploitation competency (Cragg et al., 2011) refers to the organisation's ability to manage the benefits of implementing IS; the ability to manage change in the organisation resulting from IS implementation; the ability to manage the implementation project and ability to develop collaborative partnerships resulting from use of the software. This group of competencies maps to the IT business process integration group of competencies in the Eikebrokk and Olsen (2007) framework.

The ability to deliver AIS solutions (Cragg et al., 2011) focuses on SMEs' ability to develop or customise applications, their ability to implement and integrate software; their ability to apply and use the implemented software and the ability of the SME to carry out business continuity and security processes. This group of competencies corresponds to the IT business process integration group of competencies outlined in the Eikebrokk and Olsen (2007) framework.

The supply macro group of competencies (Cragg et al., 2011) considers the organisation's ability to manage IS supplier relationships, the ability to manage and maintain information assets and the ability to carry out staff development in relation to the IS. This group of competencies maps to the IT business process integration group of competencies in the Eikebrokk and Olsen (2007) framework.

Macro-competence	Competencies
Business and IS Strategic Thinking	IS Innovation
	Business case and Investment Criteria
	Including IS in Business Strategy
	Information Governance
Define IS Contribution	IS Alignment
	Business Process Management
	Define IS Requirements
	Accessing IS Knowledge
Define IS Strategy	Software Sourcing Strategy
	IS Acquisition Processes
	Technology Infrastructure Requirements
Exploitation	Benefits Management
	Managing Change
	Project Management
	Inter-organisational Collaboration
Deliver Solutions	Application Development
	Implementation and integration
	Apply and Use Technology
	Business Continuity & Security
Supply	Manage IS Supplier Relationships
	Information Asset Management and Maintenance
	Staff development

Table 6.2: Items used to evaluate IS competencies (Cragg et al., 2011)

Cragg et al. (2011)	Eikebrokk and Olsen (2007)
Business and IS Strategic Thinking	Strategy and Vision
Define IS Contribution	Sourcing and alignment
Define IS strategy	
Exploitation	IT Business Process Integration
Deliver solutions	
Supply	

Table 6.3: Relationship between IS competence frameworks

6.4 Description of Consultants

In this phase, five consultants were interviewed. Similar to Phase-one, interviews were halted after analysis shows that the data had reached saturation. For the consultants saturation was reached after five interviews. This research was framed within the context of the implementation of accounting systems; therefore, it was pertinent to understand the steps involved and the activities that take place during implementation. It was determined after the interviews, and subsequent analysis, that there was sufficient data to investigate the impact of consultants. It was determined that further interviews would not lead to new data but simply more of what was already collected. This was because the process of implementing accounting systems was similar in each case. The accounting packages considered in this study ranged from simple packages, (MYOB) to more complex packages (Infusion). Through the examination of this range of accounting packages it was possible to investigate all of the activities that take place during a typical implementation. It is for these reasons that after five consultant interviews, it was determined that data saturation had been reached and the decision was made to halt further interviews with consultants. All of the consultants were independent resellers and two of them were also accountants (See Table 6.4).

	ABS Consulting	AP Consulting	CAD Consulting	JK Consulting	OW Consulting
Gender	Female	Male	Male	Female	Female
Number of Employees	1 Full-time	1 Full-time	1 Full-time	3 Full-time	2 Full-time
	2 Contract	-	-	-	2 Part-time
Years in Business	6 years	15 years	9 years	10 years	10 years
Major Client Industry	Trade	Service/trade	Clubs/hospitality	Service	Hospitality
Size of Clients	1- 25	1 – 35	1 – 150	1 – 100	1 - 25
Skills and Experience	Certified accountant	Self-taught accounting; Book-keeper	Chartered Accountant	Self-taught	Work Experience
	Certified QuickBooks installer	-	Certified MYOB Developer	-	MYOB Approved partner; Infusion certified consultant
	6 years consulting	13 years consulting	15 years consulting	15 years consulting	10 years consulting
	24 years accounting	15 years book-keeping		25 years accounting	10 years in accounting office
IT skills	Self-taught	Basic IT skills	Programmer	Self-taught	Basic IT skills
Education	Polytechnic Degree	B.Sc.	-	Certificate	School Certificate
Accounting Systems	QuickBooks	MYOB	MYOB	MYOB	MYOB; Infusion
Type of Consultant	Reseller	Independent	Independent Reseller	Independent Reseller	Independent Reseller

Table 6.4: Summary of the consultants interviewed

6.5 Description of SMEs

Three SMEs were interviewed in this phase of the data collection. Interviews were halted after analysis showed that the data had reached saturation. In this phase interviews with SMEs were stopped after three in-depth interviews were conducted. It was felt at this point that no new data would be obtained related to the areas of interest, IS knowledge and IS competencies. These cases/interview were deemed sufficient because the investigation was framed within the context of the implementation of accounting software and the areas of interest related to the impact of consultants. The impact that consultants have is tied to the duties and task that they perform, as established in the first phase of the study.

The tasks and duties performed by consultants during the implementation of accounting software have already been established from Phase-one and also from the consultant interviews of Phase-two. It can be argued that when consultants perform these tasks and carry out these duties they affect IS knowledge and IS competencies. Therefore, the SME cases/interviews in this phase were used to '*verify*' the impacts derived or suggested by the consultant interviews. Following this reasoning, after the third SME interview it was determined that no new data would be gained by conducting additional interviews. Therefore, interviews were discontinued after three SME cases.

SME	Industry	No. Of Employees	Annual Turnover (Millions)	Software	Client Base	Interviewee	Consultant Used
EA Thompson Manufacturing	Manufacturing	62	5M - 10M	Quick-Books	> 500	Accountant	Independent Reseller
Ideco	Manufacturing & Trades	6	1M - 5M	MYOB	200 – 500	Manager	Independent Reseller
Aman Manufacturing	Manufacturing & Trades	7	1/2M - 1M	MYOB	> 50	Manager	Accountant

Table 6.5: Summary of SMEs interviewed

6.5.1 EA Thompson Manufacturing

EA Thompson Manufacturing was a medium-sized manufacturing company with 50 employees. The company had been in existence for 97 years (since 1923). The company had a client base of over 500 customers and an annual turnover of between $5 and $10 million New Zealand dollars.

In March 2010 the company implemented QuickBooks replacing a DOS based system that they were previously using. To assist with the implementation, EA Thompson engaged the services of an independent consultant specialising in the implementation and configuration of the QuickBooks accounting software package.

The company's contract accountant, Mr Smith was placed in charge of the project to implement QuickBooks. It was Mr Smith who had suggested that the company abandon the DOS system, which *"...had long passed its usefulness..."* The decision to implement QuickBooks was made by the accountant because he believed the company needed a new system. As Mr Smith put it, *"...before the DOS based system failed completely."* The choice to implement QuickBooks was due to Mr Smith's familiarity with the software and his knowledge was sufficient for him to conclude that QuickBooks would meet the needs of the organisation. The decision to implement QuickBooks was also bolstered by the fact that it was known to integrate with the organisation's production system, MIE TRACK.

At the time of the project, apart from Mr Smith, other administrative staff members at EA Thompson Manufacturing were not knowledgeable of accounting software, or even the use of consultants to assist with accounting software. Mr Smith contented that the

company had not implemented its plans for accounting software to a high extent.

In the organisation there is a full-time IT manager; IT hardware; workstations and printers as well as a networking infrastructure. The IT manager's main responsibility is to support the core production system in the company. Therefore, the infrastructure, hardware and corresponding software managed by the IT manager were specifically to support the manufacturing production process and the MIE TRACK system.

The QuickBooks implementation project was considered a success. Mr Smith cited that the project was successful as the results were "*quick, good and there was improvement in the way that the accounting function or activities were performed*." In addition, the firm was able to get accounting information faster and the new system was considered *"much more user-friendly"* than the previous DOS system. The administrative staff members, the main users of the system, were able to easily and successfully use the new QuickBooks accounting system. Mr Smith attributed this to the fact that QuickBooks was more user-friendly and therefore staff members were much more efficient in their daily functions. Using a consultant to implement QuickBooks was hailed as a success. Mr Smith asserted that using the consultant was successful because the *"entire project was done in a simple manner. Staff training was well done, in a timely manner and staff were able to pick up using the system quickly."*

6.5.2 Ideco

Ideco was a small manufacturing/trade company with six employees. The company had been in existence for 68 years with the original company being founded in 1945. The company had a client base of between 200 − 500 customers with an annual turnover

ranging from $1 to $5 million New Zealand dollars. The interview was conducted with Jim, the co-manager of Ideco.

In 2008, the company implemented MYOB. The decision to switch to MYOB was motivated by an employee who had previously worked with the software and suggested that the company should use MYOB. The management at Ideco was not knowledgeable of accounting software. The company's administrator possessed little knowledge of commercially available accounting software. In addition, the company had not relied on consultants in the past for the implementation of their IT. Jim contended that the company's IS plans had been fully implemented.

There were three staff members at Ideco who used the accounting system. Jim used the system mainly for invoicing and purchasing along with the office assistant, Kenny, who was mainly responsible for the sales side of the accounting system. Arlene, Jim's business partner used the system for mainly bank reconciliations and profit and loss transactions. Jim was also capable of performing some of Arlene's tasks.

Jim used MYOB on a daily basis and he had knowledge of accounting principles such as balance sheet and GST. In general, the use of MYOB at Ideco covers invoicing, purchasing, stocktaking, profit and loss, forecasting and setting budgets.

6.5.3 Aman Manufacturing

Aman Manufacturing was a small manufacturing/trade company with 7 employees. The company had been in operation for 9 years. At the time of the study the company had a client base of less than 50 clients in any one year but between 200 − 500 over the

lifetime of the company. The company had an annual turnover of approximately $1/2 to $1 million New Zealand dollars. Interviews were conducted with Martin and Jacques. Jacques was the owner of the company and Martin managed the operation of the company.

In 2006, the company implemented MYOB. The decision to implement MYOB was motivated by the fact that the company was growing, in terms of staff and turnover. This growth necessitated that the company record information more accurately and generate reports of what was happening in the business. Martin discussed the matter with their accountant who advised him to implement MYOB. Aman Manufacturing followed the advice of the accountant and implemented MYOB, engaging their accountant to implement the system.

The company's knowledge of commercially available accounting software was minimal, at best. Martin surmised that the IS plans of the company had been effectively implemented. The company employed Amanda as Administrator to handle all the data entry for the accounting system. In addition to Amanda, Martin and Cathy used the system to assist with the accounting functions.

Jacques and Martin had an understanding of accounting principles. Martin had an accounting and accounting software background. He had used MYOB and QuickBooks in previous employment. Martin was part of the accounting process, at Aman Manufacturing, to the extent that he kept track of the purchase dockets and records, and he reviewed the initial 10% of all purchases. Martin used the software for purchase orders docket and receipts. He also used the system to report on suppliers who were to be paid. Amanda was responsible for data entry. Martin and Jacques were also

responsible for *"signing off the books."*

6.6 Summary

This chapter presented the design of the second phase of data collection. It showed that the case study method was still the most appropriate method to use at this stage of the study due the questions posed by this study. Building on the findings from the first phase of data collection this phase was designed to determine how consultants impact IS knowledge assets and IS competencies in SMEs. This chapter also introduced the participants involved in Phase 2 data collection. It was noted that data collection commenced with consultants and the results are later verified by comparing them with data collected in SMEs. Using a retrospective perspective interviews were conducted with consultants in an effort to understand how consultants impacted IS knowledge assets and IS competencies. SME cases were used to confirm what was learned from the consultant cases. Phase 2 data collection therefore added an additional eight (8) participants, five consultants and three SMEs, to the overall study.

In Chapter 7 the results of Phase-two data collection are presented and analysed.

7 Phase Two Results and Analysis

7.1 Introduction

This chapter presents the results and analysis of Phase-two of data collection. Data collection in this phase was designed to further study the specific impact consultants have on IS knowledge assets and IS competencies in SMEs. Knowledge and abilities or competencies emerge as important themes from the Phase-one of data collection. This phase of data collection was then used to further investigate how consultants may affect IS knowledge and IS competencies in SMEs.

IS knowledge assets were categorised into three distinct categories: experiential, routine and systemic (Chou and He, 2004). The results of this data collection phase will show what impact consultants have on these three knowledge asset categories. It will be proposed that consultants aid in the creation of knowledge assets when they embark on the implementation of IS. Their influence appears to be most notable in the creation of experiential knowledge assets. The results will also show that consultants influence IS competencies within SMEs. It is proposed that consultants have an impact on the Strategy and Vision competence, the Management of IT competence, the Process Integration competence and the Sourcing and Alignment competence.

Chapter 7 includes the following sections:

7.2 Part I – IS Knowledge Assets

7.2.1 Interviews with Consultants

This phase of data collection was designed based on what was learnt in the exploratory phase. For this part of the study, different participants were sought. In the first phase of data collection there were four SMEs and three consultants. In this phase of data collection there were five new consultants and three new SMEs. These were previously described in Chapter 6.

As previously noted the questions used in this stage were developed from Chou and He's (2004) work on knowledge assets. The authors explored four knowledge areas: experiential knowledge assets, routine knowledge assets, conceptual knowledge assets and systemic knowledge assets. Three of these items were deemed applicable from the Chou and He (2004) study and were chosen based on the idea that knowledge is built and transferred from interactions among people (Nonaka et al., 2000; Nonaka and Toyama, 2005; Dawson, 2005). The items chosen represent knowledge assets that involve the interaction of people, namely consultant-client interactions (Table 7.1).

		Knowledge Assets (Chou and He, 2004)	Description	Level of Support
Experiential Knowledge Assets	1	Employees gain hands-on experience with using the accounting software	Knowledge is improved by doing under the guidance of the consultant.	✓✓
	2	Employees gain experience in accounting	Knowledge of accounting improves	✓
	3	Employees learned to improvise as needed when using the accounting software	Employees are able to take initiative to solve problems/issues/get things done using the software	✓✓
	4	Employees have a high level of trust in the consultant	Employees trust the consultant	✓
	5	Employees were enthusiastic about using the accounting software	Consultant aids in making employees excited/interested in using the implemented software	✓
Routine Knowledge Assets	1	Employees are now fully aware of the importance of knowledge in the routinely using the accounting software.	Consultants impress on employees how important it is to have knowledge (know-how and skills) in order to do their jobs using the implemented software	✓
	2	Employees are now able to explore new knowledge using the accounting system	Employees learn how-to acquire knowledge of the system on their own	✓
	3	Employees gained sufficient knowledge (know-how) to carry out day-to-day activities using the accounting software	Employees knowledge of how to use the implemented software for daily tasks increases	✓✓
Systemic Knowledge	1	Employees now have easy access to information stored in the accounting database	Consultant ensures that employees are able to access information stored in the database (reports)	✓
	2	Employees received well-organised accounting software documentation (Books, CDs, DVDs, Magazines, Web resources, Manuals)	Consultant supply employees with books, CDs, DVDs, magazines, web resources, manuals	✓

Table 7.1: Knowledge assets and the level of support from the consultant cases (✓✓= Strongly supported, ✓ = Supported)

To examine whether consultants have any impact on the development of knowledge assets in SMEs, the consultants were asked to rate their agreement on a Likert scale where 1 meant strongly disagree; and 7 meant strongly agree. These were followed by several interview questions that related to the knowledge assets of interest (see Appendix B).

Table 7.1 shows the combined results of the survey type questions. The level of support represented in Table 7.1 is obtained by using simple averaging of the results from the five consultants interviewed. These results clearly show support for all of the knowledge assets considered. This implies that consultants contribute to the development of knowledge assets that result from the implementation of accounting systems. In-depth discussions are used to shed light on the findings presented in Table 7.1.

7.2.1.1 Experiential Knowledge Assets

Consultants are a source of hands-on knowledge and know-how for small and medium-sized enterprises. This was confirmed in the consultants' discussions regarding their impact on IS knowledge in SMEs.

In terms of accounting and accounting packages, consultants were asked to identify who they thought were the main sources of hands-on experience. Most of them indicated that the SMEs they worked with usually possessed some hands-on experience, and they considered themselves a source of hands-on expertise for SMEs. The consultants also noted that the main source of hands-on knowledge depended on the particular situation present within SMEs. Some SMEs possess little (or no) IS skills or experience. In such cases, consultants were the main source of hands-on knowledge, and taught employees

everything they needed to know to utilise the system. The consultant from OW Consulting gave an example of a client who implemented an accounting system but did not have any knowledge of accounting or any experience with accounting software. The consultant from OW Consulting explained, *"I taught her accounting because she had no admin experience at all."*

On the other hand, some SMEs had staff with accounting experience or possessed accounting software. In such cases, the consultant was still a source of knowledge, assisting these SMEs with completing journals, depreciation and accruals.

The consultant from CAD Consulting explained,

> *"And then at other organisations they have already got a bookkeeper and all that, but I invariably find that these bookkeeper people can only go to a certain level..."*

In response to the question on the sources of knowledge for SMEs, the consultant from CAD Consulting indicated, *"So it varies from client to client depending on the size of the organisation and the capability that's there."*

Table 7.1 displays the five areas that represent experiential knowledge assets and are supported by the data. This confirms that consultants impact or contribute to experiential knowledge assets in SMEs, which mainly pertain to hands-on experience, know-how and improvisation.

This suggests that consultants believed that in providing employees with hands-on skills in the use of a specific system or how to use the implemented software, they added value or improved knowledge assets in SMEs.

The consultants contended that they improved the employees' knowledge by teaching them how to use a system and how to improvise when using the software to achieve their objectives.

The consultants also believed that the employees in SMEs trusted them. Therefore, they were able to positively influence the level of enthusiasm employees displayed when using accounting software. However, when it came to accounting experience the consultants were less convinced about their impact on the employees' use of software. There was some support for the notion that consultants assisted employees of SMEs to gain accounting experience.

During discussions with consultants, how hands-on knowledge was transferred from consultant to the client was further explored. Training emerged as the main method of knowledge transfer from the consultant to client. Much of this training was in the form of one-on-one sessions with employees. In addition, some consultants also used step-by-step documents to build hands-on expertise.

The consultant from JK Consulting revealed, *"... generally 90% of the training that I do is out at the clients' workplace, one-on-one training... showing them what to do."* He also believed that on-going contact with the client was essential in the implementation process. The consultant noted that on-site visits, involving one-on-one training with SMEs, occurred over several months.

The consultant from JK Consulting stated that she provides mainly new clients with a step-by-step guide of *"basic knowledge"* to help get them started. The document reinforced what was discussed and what was shown during the one-on-one sessions.

The consultant explained that usually after two hours of talking with clients, they were likely to forget some of the information and the document served as a reminder.

Apart from acquiring hands-on expertise, it has also been argued that SMEs gain know-how from consultants. In gaining hands-on skills, SMEs also obtained know-how. During discussions with the consultants, the transfer of know-how (knowledge) from consultants to clients was also explored. The group of consultants used several methods, but training remained the most common method by which know-how was transferred.

In addition to training, the consultants provided SMEs with step-by-step procedures. The consultant from ABS Consulting emphasised the use of this approach,

> *"I try and break it down into as small steps as possible and try and layout the process for them to get their work done."*

The consultants also transferred know-how to SMEs when they engaged in telephone support, especially when responding to specific client queries. Newsletters were also used to pass information onto SMEs.

During the discussions, it emerged that consultants were a diverse group with different backgrounds and skill sets (see Table 6.1 in the previous chapter). Table 6.1 shows the consultants include two certified accountants, one bookkeeper and two with no formal certification in accounting. As expected the consultants who were certified accountants appeared to have more impact on accounting knowledge while those who were uncertified tended to refer SMEs to accountants for more complex accounting issues.

The consultant from OW Consulting stated that since she was not a trained accountant she suggests that more complex accounting queries be referred to the client's accountant.

The consultant dealt with knowledge directly related to the accounting software and its use; for example, where to code specific items in the software.

These types of knowledge: hands-on, experience and know-how are tacit in nature and are classified as experiential knowledge assets (Chou and He, 2004). Experiential knowledge assets consist of the tacit knowledge that is built through shared hands-on experience -- in this case between the consultant and employees of SMEs. Experiential knowledge assets also consist of emotional knowledge (care, love, trust), know-how and energetic knowledge (sense of existence, enthusiasm). Employees acquire and accumulate experiential knowledge assets through the shared experience of working with consultants.

In summary, based on the interviews with the consultants, one may conclude that consultants contribute to the transfer of experiential knowledge in SMEs. Consultants may be seen as a source of IS knowledge for SMEs. Their impact on the development of IS knowledge is more noticeable when the organisations lack skills and experience.

7.2.1.2 Routine Knowledge Assets

Routine knowledge assets consist of tacit knowledge that has been converted into routines and embedded in the actions and practices of the organisation. Routine knowledge assets provide clear vision and an organisational culture that facilitate the dynamic evolution of knowledge creation (Chou and He, 2004). These types of knowledge assets consist of: patterns of thinking; the realisation of the importance of knowledge (to carry out routine operations); the ability to explore new knowledge and the know-how for conducting day-to-day activities.

The ability to carry out routine operations in the implementation of accounting packages refers to the practices and procedures connected to the use of the accounting system in SMEs. These practices are the means by which knowledge is created. This section examines the routines and practices put in place by consultants that contribute to the growth of knowledge in SMEs.

The three areas used to examine the impact of consultants on routine knowledge assets are displayed in Table 7.1. Since routine knowledge assets deal with knowledge that is regulated in actions and practices, consultants were able to influence these knowledge assets when they suggest or establish routines for the staff of SMEs to follow.

The consultants purported that they helped users with the knowledge needed to carry out day-to-day activities. The consultants stated that they made employees of SMEs aware of the importance of possessing knowledge to carry out tasks that required using the software. However, there was less support for the idea that consultants were able to influence the employees of SMEs to explore and utilise the implemented system to gain new knowledge.

The consultants were asked if they instituted any routines in SMEs to assist them in learning the implemented software. Some consultants stated that establishing routines should be left up to the organisation, while others were willing to suggest procedures for SMEs to follow. The consultant from OW Consulting noted that she did not utilise formal routines as she regarded it an *"organisational thing"*. The consultant said she worked with SMEs to help them create or establish the appropriate routines for the organisation's use of the system. The consultant from CAD Consulting stated that he had no formalised routines but would *"... go over with the client what needed to be*

done daily, weekly and monthly," and recommend to the client the necessary procedures to follow. The consultant from ABS Consulting indicated,

> *"I usually recommend a process. I haven't formalised it with documentation.... but I would usually recommend it verbally and get them to write it down."*

The consultant from JK Consulting added that usually with new clients, who were unaware of how the entire process worked, she usually recommends a basic bookkeeping routine to help SMEs with their needs. On the other hand, the consultant from AP Consulting stated that routines should be left to the client.

Although none of the consultants employed any formal routines, they established informal routines in SMEs. Consultants contributed to routine knowledge assets in SMEs by assisting their clients in creating informal routines. This point is best captured in the following quote from OW Consulting,

> *"So they will either write it out as you work through it with them: so they'll essentially write their own procedure for it, but you work with them while they're doing that. I find that better because the way I word something may not be the way they would word something; so if I do it for them they may not understand that when I'm not there. So it's better to be written in their words so that they can then use it in hindsight."*

7.2.1.3 Systemic Knowledge Assets

Systemic knowledge assets are essentially systemised and packaged explicit knowledge. This type of knowledge consists of explicitly stated technologies, product specifications, manuals and organised documents and information repositories like databases. In this section, consultants' impact on systemic knowledge in SMEs is examined.

Two items were used to assess the impact of consultants on systemic knowledge assets (Table 7.1). Since systemic knowledge assets deal with packaged knowledge, these two areas relate to the accounting database and software documentation including books, CDs, DVDs and related on-line material. The consultants proffered that they were able to ensure employees of SMEs have easy access to the information stored in the accounting database. However, they did not believe that software documentation and provided material assisted employees in gaining knowledge.

When consultants were asked about the use of software manuals, DVDs, CDs and on-line help, two things immediately become clear:

- Since software documentation was now mainly on-line, vendors seldom provided materials such as books and DVDs.
- Most employees of SMEs did not use the on-line help or any documentation that may be included with the software.

The consultant from ABS Consulting stated that she normally referred clients to the on-screen help, encouraged them to use it and showed them how to access on-line material. She further noted, *"... the books and CDs they get put on a shelf and never looked at again."*

The consultant from AP Consulting noted that very few people used the actual reference material. He pointed out that, *"They don't want to fool around and look in a book, go on a website; it might or might not work, and all the rest of the drama that goes with it."* The consultant from CAD Consulting said that although he supported the notion that reference material was not used, he noted:

"What I find is that it varies from person to person. Some people really like

to use the help; other people will just pick up the phone and phone me. Yeah, it really does vary."

When the consultants were asked how they assist SMEs in making use of the information stored in the accounting database; the responses indicated that consultants helped SMEs to identify and generate appropriate reports. For the most part, consultants assisted SMEs to identify and create the standard reports that they needed. The consultants spent time training SMEs on the importance of reports and how to generate these various types of documents.

The consultant from ABS Consulting stated,

"I would, as part of the training, show them how to run the reports and explain the usefulness of those reports and why they exist and who usually would want information from those reports."

Similarly, the consultant from CAD Consulting pointed out,

"So I'll sit down with them and find out what information they really want to make.... I go through with them the sort of standard reports that they ought to be using so that they can get the information that they're looking for. I'd also make recommendations on the sort of reports that I think they ought to look at."

The consultant from JK Consulting added, *"It's teaching, at the end of the day it's teaching people how to use the reports."* She further noted that she would indicate to the client, what reports they needed and which ones might be of interest.

Perhaps the best way to sum up the position of consultants on helping SMEs to utilise their accounting information is to present what was said by the consultant from AP

Consulting. The consultant explained,

> *"We have spent quite a bit of time looking at how we can actually extract information out of particularly MYOB... we build reports for people and we teach them how to read them; using colour, using diagrams, using graphs wherever we can, and, attempting to get them to actually read a profit and loss report. Now, if I could do that I would feel that my life had been well worthwhile because I think with a profit and loss report and a bank reconciliation done accurately and done on time, they've at least got something."*

The consultant continued,

> *"But to get them to look at profit and loss, look at it from period to period, year to year; are we getting better, are we getting worse. Why is it happening, and talking to people about those. Not the questions of, you know, can we take more money out of the business? But looking at the thing and saying, Have we done better this month? Why have we done better? What have we done differently this month that we didn't do last month and should we do it again. Trying to get people to concentrate on just asking those simple questions for each and every month. And then bigger companies, trying to get directors to this stage where they look at their balance sheet, their profit and loss and the sales reports and purchase reports. They're actually looking at them, they're examining them and when they sign off, they're happy they understand what's actually in there."*

In summary, SMEs gain little from systemic knowledge like software manuals, DVDs, CDs and on-line help because their employees seem unwilling to use such material. As is noted by the consultant from OW Consulting, one of her clients once stated, *"if I*

wanted to go to sleep I'd read a book I might be interested in." Many accounting software manufacturers now supply their reference material on-line making the consultants' role that of encouraging their clients to use the material. However, as all of the consultants pointed out, SMEs do not use the material that is available. When it comes to using accounting information, the consultants spend a considerable amount of time training and showing SMEs how to generate and use reports to get the information they need. Consultants may be seen as having an impact on the creation of this form of systemised knowledge assets in SMEs and in providing documents and newsletters to clients.

The analysis presented above is summarised in Table 7.2, which presents the impact that consultants have on the various knowledge assets examined at this stage of the study. It can be concluded that consultants have an impact on IS knowledge assets in SMEs. The knowledge areas impacted are:

- Experiential knowledge assets
- Routine knowledge assets
- Systemic knowledge assets

		Knowledge Assets (Chou and He, 2004)	Impact of Consultants
Experiential Knowledge Assets	1	Employees gain hands-on experience with using the accounting software	A source of hands-on knowledge as they teach employees how-to use the software
	2	Employees gain experience in accounting	Where consultants were also accountants there is some improvement
	3	Employees learned to improvise as needed when using the accounting software	Employees are shown how to utilise the implemented software
	4	Employees have a high level of trust in the consultant	Employees trust the consultant
	5	Employees were enthusiastic about using the accounting software	Consultant make employees interested in using the implemented software
Routine Knowledge Assets	1	Employees are now fully aware of the importance of knowledge in the routinely using the accounting software.	Made employees aware of the importance of (know-how and skills) in order to use the implemented software
	2	Employees are now able to explore new knowledge using the accounting system	Did not improve employees ability to gain new knowledge
	3	Employees gained sufficient knowledge (know-how) to carry out day-to-day activities using the accounting software	Consultants suggest routines and procedures to assist employees with day-to-day activities
Systemic Knowledge Assets	1	Employees now have easy access to information stored in the accounting database	Consultant teach employees how to generate reports
	2	Employees received well-organised accounting software documentation (Books, CDs, DVDs, Magazines, Web resources, Manuals)	Consultant supplied employees with CDs/DVDs and manuals but these were seldom used

Table 7.2: Summary of consultants' impact on IS knowledge assets

7.2.1.4 Knowledge Creation

According to Nonaka et al. (2000), to further understand the effect consultants have on the IS knowledge assets observed, the explanatory power of knowledge creation theory is now applied. Nonaka et al. (2000) and Nonaka and Toyama (2005) suggest that knowledge creation occurs through the SECI process and involves four modes of knowledge conversion, which are listed in Table 7.3. Knowledge creation, it is argued,

takes place during consultant-client interactions resulting in knowledge assets. Considering the implementation process and the consultant-client interactions knowledge conversion is examined by comparing elements of the implementation process to the SECI process.

Table 7.3 shows that socialisation occurs when consultants and employees of SMEs interact especially during one-on-one sessions. During these interactions, consultants transfer tacit knowledge directly to employees who store this information. Table 7.3 also shows that during the combination process, SMEs gain systemic knowledge from explicit knowledge stored in the accounting database when they generate various reports. Internalisation, as the table shows, occurs when consultants establish routines for SMEs to follow. When employees follow these routines explicit knowledge is converted to implicit knowledge. Externalisation occurs when consultants create routines for SMEs to follow, thereby converting implicit knowledge to explicit knowledge in the form of written routines.

	Description	Evidence
Socialisation	New tacit knowledge converted to tacit knowledge	Occurs as consultant interacts and shares with employees: one-on-one sessions. (Experiential knowledge assets)
Externalisation	Tacit knowledge converted to explicit knowledge	Consultants use their knowledge to create/suggest routines and procedures for employees (externalise their knowledge)
Combination	Explicit knowledge converted to explicit knowledge	Knowledge from database. Consultants teach employees how to generate reports (Systemic knowledge assets)
Internalisation	Explicit knowledge converted to implicit knowledge	Learning by doing, routines. Consultants establish informal routines for employees to follow (Routine knowledge assets). Teach employees how to interpret and use knowledge from reports.

Table 7.3 SECI process and the interview data

7.2.1.5 Summary of Findings

The consultant data supported the idea that consultants influenced IS knowledge assets in SMEs. Three types of knowledge assets were considered experiential, routine and systemic knowledge assets. From the interviews conducted with the consultants it was determined that the impact of consultants was related to the creation/transfer of IS knowledge to SMEs.

Experiential knowledge assets, which are tacit knowledge shared through hands-on or working experience, are bound to the skills and experience of employees. Discussions with the consultants showed that they created/transferred experiential knowledge assets to SMEs and were a source of hands-on knowledge and skills. They also provided

SMEs with a source of know-how knowledge.

The data supported the building and enhancing of routine knowledge assets, which are tacit knowledge embedded and regulated in the actions and practices of the organisation. The discussions revealed that routines surrounding the use of accounting software were usually informal and allowed consultants to create/transfer routine knowledge assets to SMEs.

Systemic knowledge assets, which are systematised and packaged explicit knowledge are contained in manuals and documents as well as information stores like databases. Consultants contributed to systemic knowledge when they also ensured that employees were able to extract information from the accounting database.

In the section that follows SME interviews are presented and the impact of consultants on knowledge is further explored.

7.2.2 SME Interviews

7.2.2.1 EA Thompson Manufacturing

The responses indicated that, in the case of EA Thompson, knowledge related to the accounting practice, hands-on and know-how was transferred to the organisation through the accountant, Mr Smith. However, it is noted that hands-on experience with QuickBooks was gained from the consultant. This was highlighted by the responses to the survey type questions. Hands-on and know-how related to the software was transferred by the consultant. Through training sessions, employees acquired know-how knowledge. Apart from the training by the consultant, the office manager was sent on a

QuickBooks training course three or four months after the project was implemented. This was facilitated to *"fill in the gaps"* in her knowledge and skills.

There was no evidence to suggest that the consultant was able to generate employee enthusiasm over using QuickBooks. There was no evidence to suggest that from the employees' interactions with the consultant they were able to "*improvise*" when using the accounting software. There was no evidence to suggest that the consultant established routines at EA Thompson to help build employees' know-how.

More importantly, the consultant helped them generate reports from the system. The employees trusted their consultant. Trust is considered a knowledge asset in organisations. Through their interaction with the consultant, the staff at EA Thompson acquired the know-how to carry out their daily activities using the accounting system.

EA Thompson was the largest of the SMEs interviewed. The company had an IT department and a part-time accountant. This case revealed that by carrying out various tasks, the consultant was able to influence the following knowledge assets at EA Thompson:

- Experiential
    - Know-how (related to the accounting package)
    - Hands-on (related to the accounting package)
    - Trust in the consultant
- Routine
    - Daily know-how (using the software)
- Systemic
    - Generating reports

7.2.2.2 Ideco

The impact of the consultant on knowledge assets in the organisation was further explored in the face-to-face interviews. The three knowledge assets areas under investigation were experiential knowledge assets, systemic knowledge assets and routine knowledge assets.

From the interview, it was concluded that there was no support for the notion that consultants affected routine knowledge assets. Ideco had not established any routines surrounding the use of their accounting system.

In the case of experiential knowledge assets much of the knowledge and skills developed at Ideco were self-taught. There was some assistance from their accountant. Jim noted that he learned how to use the implemented software mainly on his own. His accounting know-how was gained with the assistance of their accountant. When asked about the main source of accounting experience (knowledge and skills) Jim stated, *"Well, basically from our accountant"*. Jim stated that the new accounting knowledge he gained was linked to their accountant as well. He pointed out, *"...Marvin our accountant comes and says, I think you need to do such and such. And I think you need some training in this area."*

When it came to learning and knowledge surrounding the use of MYOB, Jim pointed out that they *"Just learn it as we went"*. He pointed out that not only did he teach himself how to use the software but he also gained new knowledge by reading the manual and searching on the Internet. *"I keep the manual handy all the time, just in case..."* Jim pointed out.

He said that the consultant assisted the organisation by providing expert IS knowledge and skills. In essence, the consultant compensates for a lack of specific IS expertise at Ideco by implementing the system and configuring it for use. This was a task that the staff of the organisation could not do on its own. Jim said of the consultant, *"She helped in setting it up. Showing us where… I told her what we wanted from the package and she set it up to do that."*

Ideco utilised systemic knowledge assets through the manuals. Management was able to gain knowledge about the business by using standardized bank reconciliation, invoicing and pricing reports that were generated by the system. Jim stated, *"Basically we have had to learn how do we get that; so we end up going to the reports."* The consultant assists the organisation with the way they operate. Jim noted that when they were doing things "*the long way,*" the consultant improved on what they were doing: *"Sometimes we've gone the long way and the consultant has come and she has gone, well let's do it this way,"* Jim noted.

Overall, this case does not reflect a major influence from the consultant on the knowledge assets of an organisation. It does however highlight that the consultant contributes to creating/transferring know-how in the use of the software, which relates to experiential knowledge assets.

7.2.2.3 Aman Manufacturing

The consultant's impact on knowledge assets in the organisation was explored further in face-to-face interviews. The three areas of knowledge assets under investigation were: experiential knowledge assets, systemic knowledge assets and routine knowledge assets.

Aman Manufacturing established some routines surrounding their accounting process. The company developed the use of dockets for the recording of all actual purchases and the use of a "*site record book*". Reports were generated on a monthly basis. These procedures were put in place by management following the knowledge gained from best practices used in other industries. Evidence showed routines were in place but there was nothing to suggest that these were influenced by the use or presence of the consultant. However, Martin noted that all of their new knowledge came from the consultant and knowledge of software updates came from the software vendor.

Although there were routines in place at Aman Manufacturing, and some evidence to suggest that the consultant contributes to new knowledge in Aman Manufacturing, the consultant does not appear to have influenced routine knowledge assets, overall.

Martin, who manages Aman Manufacturing, noted that his experience with accounting was learned at high school where he studied accounting and later when he worked at a bank. Martin also gained hands-on experience managing another company. He gained hands-on experience with MYOB from the on-site training provided by their accountant who also acted as the consultant for the implementation of the software. Martin noted that he gained accounting knowledge from his previous job at a bank and other business that he managed. Jacques joked that his knowledge of accounting was all hands-on, *"... write things down in a note book."* Martin noted that his knowledge of how to use the software was gained from the consultant (their accountant).

Martin also explained that they ran several reports to "*see what is going on*." Amanda, who was hired to manage and use the accounting system, was the one responsible for compiling the reports. The company produced monthly reports to get an idea of how the

company was performing. They also produced reports every three months to check on the progress they had made to-wards achieving their targets. This report was also used in the regular meeting with their accountant. Management also generated reports on stock, profit and loss and breakdowns for costing. The evidence suggests that the consultant provided Aman Manufacturing with systemic knowledge assets by ensuring that Aman Manufacturing was able to generate reports from the accounting database.

It may be concluded that consultants impacted on experiential knowledge assets at Aman Manufacturing by assisting with hands-on experience and knowledge to use the system. This was achieved through on-site hands-on sessions and *"shadowing"* of the staff at Aman Manufacturing.

It may be concluded that during the project and after its implementation, the consultant maintained an on-going relation with Aman Manufacturing, thereby influencing the following knowledge assets:

- Experiential
    - Hands-on experience and knowledge to use the system
- Systemic
    - Generation of reports

7.2.3 Cross-case Analysis - SMEs

The analysis of the SME results indicates that consultants have an impact on IS knowledge assets. Across all of the cases, consultants affected experiential knowledge assets. In terms of accounting databases, consultants also influence systemic knowledge assets. There was little support for consultants' impact on routine knowledge assets,

except for the idea that SMEs gain sufficient knowledge to carryout day-to-day activities. The results are presented in Table 7.3.

		Knowledge Assets (Chou and He, 2004)	EA Thompson	Aman	Ideco	Level of Support
Experiential Knowledge Assets	1	Employees gain hands-on experience with using the accounting software	✓✓	–	–	✓
	2	Employees gain experience in accounting	✓	✓	✗	–
	3	Employees learned to improvise as needed when using the accounting software	✗	✗	✓	✗
	4	Employees have a high level of trust in the consultant	✓✓	✓	–	✓
	5	Employees were enthusiastic about using the accounting software	✓✓	✓	–	✓
Routine Knowledge Assets	1	Employees are now fully aware of the importance of knowledge in the routinely using the accounting software.	✓	✗	✓	–
	2	Employees are now able to explore new knowledge using the accounting system	✗	✗	–	✗
	3	Employees gained sufficient knowledge (know-how) to carry out day-to-day activities using the accounting software	✓✓	✓✓	✓	✓
Systemic Knowledge Assets	1	Employees now have easy access to information stored in the accounting database	✓	✓✓	✓	✓
	2	Employees received well-organised accounting software documentation (Books, CDs, DVDs, Magazines, Web resources, Manuals)	✗	✓✓	–	–

Table 7.3: Impact of consultants on IS knowledge assets -SME perspective (✓✓= Strongly supported, ✓ = Supported, ✗ = Not Supported, - = Undecided)

7.2.3.1 Experiential Knowledge Assets

The staff of the SMEs interviewed stated that by engaging consultants they learned to

trust them; acquired knowledge; became more enthusiastic about using the various systems and developed experience with the software as well. They did not learn how to improvise when using the system and were undecided as to whether they gained any accounting knowledge from the consultants.

In all of the cases, the interviewees noted that the consultant was influential in the hands-on knowledge that they gained from the accounting software. The interviewee from Aman Manufacturing stated that he received his skills in MYOB from the consultants who implemented the software. The interviewee from Ideco contended that the consultant assisted them with how to use aspects of the software. EA Thompson's accountant proffered that he was the main source of accounting knowledge for the organisation but that the consultant was the source of knowledge for the software QuickBooks.

In terms of know-how, the consultants' impact was evidenced in the use of the software. However, the interviewee from Ideco stated that he mostly learned how to use the software on his own.

7.2.3.2 Systemic Knowledge Assets

Two areas of systemic knowledge assets were considered: software documentation and the software database. SMEs agreed that engaging consultants provide them with easy access to information stored in the accounting database. In other words, they were taught how to produce a variety of reports from the database. However, they were undecided as to whether engaging consultants lead to the provision of well-organised software documentation such as CDs, DVDs and manuals.

Knowledge can be acquired from the accounting database in the form of reports. Data from the interviews showed that the consultants provided access to systemic knowledge assets. However, in only one case, Ideco, the SME made use of software manuals. In others, access was provided to the database and SMEs were shown how to generate reports.

7.2.3.3 Routine Knowledge Assets

From the interviews with SMEs it was found that engaging a consultant allowed employees to gain the knowledge needed to carry out their daily activities using the system. However, the staff believed that engaging consultants did not make them learn or create new knowledge on their own. They could not decide whether consultants provided any added awareness regarding using the system to do their job.

When considering the cases, there is little evidence to show that the consultants used by these three companies had an impact on routine knowledge assets. There were no routines in place at Ideco and EA Thompson to facilitate the use of the accounting system. Aman Manufacturing had established routines but these had been put in place by management.

Table 7.4 below shows the cross-case evidence of the influence that consultants had on various knowledge assets.

	EA Manufacturing	Ideco	Aman Manufacturing
Experiential Knowledge Assets	Consultants influenced know-how and hands-on knowledge through training	Consultant help SME with how to better use the system	Consultants through hands-on sessions help SME build know-how
Routine Knowledge Assets	Consultants through interactions with staff helped with day-to-to know-how	-	-
Systemic Knowledge Assets	Consultants showed staff how to generate reports	-	Consultants showed staff how to generate reports

Table 7.4: Evidence of the influence of consultants on knowledge assets - SME data

7.2.3.4 Summary of Findings

The interviews with the SMEs supported the premise that consultants have an impact on knowledge assets in SMEs. However of the three types of knowledge assets considered (experiential, routine and systemic), only two were supported. From the interviews conducted with SMEs, it was determined that the impact of consultants was to create/transfer IS knowledge in relation to experiential and systemic knowledge assets. Consultants provide access to systemic knowledge assets.

Consultants were a source of hands-on knowledge and skills for SMEs. They were also a source of know-how knowledge. Experiential knowledge assets are tacit knowledge shared through hands-on or working experience. Consultants also influence systemic knowledge assets. These, it has been noted, are systematised and packaged explicit knowledge. This type of knowledge is contained in manuals and documents as well as information stores like databases. The results indicated that consultants aided SMEs in establishing or providing access to systemic knowledge assets.

The interviews with SMEs did not suggest that consultants had an impact on building or

enhancing routine knowledge assets. Routine knowledge assets are also tacit knowledge and are embedded in the regulations, actions and practices of the organisation. Overall, the SMEs interviewed did not feel that consultants contribute to building routine knowledge assets.

In conclusion, what emerged from the interviews with SMEs, was that consultants have an impact on IS knowledge assets in SMEs in the following areas:

i. Experiential knowledge assets

ii. Systemic knowledge assets

7.3 Part II – IS Competencies

7.3.1 Analysis of Interviews with Consultants

The impact of consultants on IS competencies in SMEs was investigated using the comprehensive frameworks of Eikebrokk and Olsen (2007) and Cragg et al. (2011). The survey questions were developed using the Eikebrokk and Olsen (2007) framework and the further in-depth questions were derived based on the Cragg et al. (2011) framework.

The consultants were not asked all of the items in the Eikebrokk and Olsen (2007) framework because some of the questions related specifically to SMEs and could only be answered by them. Table 7.5 displays the items used and the level of support that emerged from the interviews.

		Competence (Eikebrokk and Olsen, 2007)	Level of Support
Strategy and Vision	**Concept of AIS**		
	1	Knowledge of how AIS can be of value to the business	✓
	2	Knowledge of how competitor(s) use AIS to support similar business areas	✗
	Strategic Planning		
	1	Knowledge of strategic planning	✗
	2	Well-developed set of strategic planning techniques	✗
Sourcing and Alignment	**Sourcing Competencies**		
	1	Knowledge on outsourcing of activities to other companies	✗
	2	Knowledge on how to use competencies in business partners	✗
	Alignment Competencies		
	1	Good at using of competencies they already have	✓
	2	Good at using competencies represented in business partners	✗
IT Business Process Integration	**Competencies in Process Integration**		
	1	Working with the impact of the AIS on business processes	✓
	2	Good at reorganising work to utilise new AIS	✓
	Management of IT		
	1	Achieve anticipated benefits of AIS investment	✓
	System Infrastructure		
	1	Infrastructure is flexible in relation to company's future needs	✓

Table 7.5: Results of survey type questions on IS competencies (✓ = Supported, ✗ = Not Supported, - = Undecided)

7.3.1.1 Strategy and vision

There was no evidence to support that consultants had an impact on the group of competencies, Strategy and Vision. This group comprised of two competencies, the concept of AIS and strategic planning. Of the two items used to assess the concept of AIS only one was supported: consultants assisted SMEs in gaining knowledge of how accounting software can be a valuable resource to their businesses. There was no support for the two items used to measure strategic planning, which suggested that consultants did not assist SMEs with this competence (Table 7.5).

To further investigate the strategy and vision competence, the discussion with

consultants focused on the macro-competence Business and IS Strategic Thinking (Cragg et al., 2011). From the discussions with the consultants the theme emerged that consultants provided a means for SMEs to identify and evaluate the potential and implications of implementing accounting packages. This is achieved when consultants discussed implementing the software with SMEs. The consultants shared knowledge with SMEs on the potential of implementing particular software. The ability to identify and evaluate the potential and implications of implementing accounting software (Cragg et al., 2011) relates to knowledge of how accounting software can be of value to the organisation (Eikibrokk and Olsen, 2007). In providing this ability to SMEs, consultants compensate/overcome for this lack of ability.

7.3.1.2 Sourcing and Alignment

There was no supporting evidence that consultants had an impact on the sourcing or alignment of accounting systems in SMEs. The sourcing and alignment group consists of two competencies, the sourcing competency and the alignment competency. These two items were used to assess the sourcing competency and the consultants did not support any of them. There was however, some support for the notion that consultants assisted SMEs in using the competencies that they already possessed.

The in-depth discussions conducted with consultants focussed on the macro-competencies of Define IS Contribution and Define IS strategy (Cragg et al., 2011). The discussions revealed that consultants assisted SMEs to manage business processes related to the implementation of accounting packages. The consultant from JK Consulting expressed this:

> *"Look, you come back to the old shoe box; hey I've seen shoe boxes! Yes, part of the thing is if you put in accounting system in place. I've come across*

a lot of clients where they have never done the books in-house; the accountant handles everything. The accountant does all their processing; they just provide bank statements or they provide information to the accountant; he does everything. They get to a point of saying, "Weren't you want to do this ourselves? So therefore, then; their system, at the moment; they don't have a system, basically."

Consultants also influence SMEs' ability to access IS knowledge, primarily when it came to finding hardware providers. The in-depth discussions revealed that consultants helped SMEs define the information application architectures for hardware and software.

The consultant from ABS Consulting explained that she outlines what hardware infrastructure was needed to implement a system. However, the logistics surrounding the hardware and infrastructure were left to SMEs and their IT suppliers. The consultant liaised with the IT suppliers. The consultant assisted clients (if needed), in evaluating various options and recommended which system was best suited for their needs. In most instances, the consultant recommended an appropriate off-the-shelf solution. An analysis of the discussion with ABS Consulting suggests that the consultant compensated for this competence.

The consultant from AP Consulting stated that he made suggestions only if the hardware was not useful or had reached the end of its usefulness. In addition, the consultant made recommendations of what system suited the organisation. The consultant from CAD Consulting said he recommended the minimum requirements for the software they supply. The consultant said he always suggests a packaged solution.

The consultant from JK Consulting said he either recommended new hardware or the

upgrading of the existing infrastructure in addition to software. She made an assessment of what the client required and advised them on the software to use. For example, if MYOB was not suitable she suggested Infusion or some other software package. The consultants from OW Consulting said she usually checked that the minimum hardware was met otherwise the consultant recommends a hardware person to the SME. If necessary, this consultant explained she would direct SMEs to other software suppliers/consultants from what she terms her *"trusted circle"*. Generally, the consultant recommends an off the shelf packaged solution for the organisation.

7.3.1.3 IT Business Process Integration

This grouping consists of three competencies, process integration, management of IT and systems infrastructure. The results indicated that there was support for the idea that consultants assist SMEs with the integration of IT and their business processes. Two items were used to measure this competency and both were supported. In order to utilise the accounting software, the consultants purported that they assist SMEs to work in understanding the impact of the implemented accounting system on business processes, and to reorganise work processes.

The other two competencies were not supported by the data, which suggests that the consultants did not feel that they assisted SMEs to manage the IT function or to make the systems infrastructure flexible. More in-depth discussions conducted with the consultants focussed on the macro-competencies Exploitation, Deliver solutions and Supply (Cragg et al., 2011). The discussions targeted the ability of SMEs to exploit accounting systems, to deliver the IS solution and to supply accounting software (Cragg et al., 2011). The discussions sought to determine how consultants affect these abilities.

7.3.1.3.1 Supply Competence

To examine the impact on the Supply competence, consultants were asked to describe the ways they assisted SMEs in maintaining their IS technology and resources. The first theme that emerged was that of consultants developing on-going relationships with their clients. The consultants contended that they had excellent relationships with most of their clients. The consultant from JK Consulting and OW Consulting characterised their relationship as being similar to a friendship. It is through these on-going relations that consultants were able to assist SMEs in keeping their systems operational.

The consultant from The ABS Consulting noted that with clients where she was the accountant, there was a stronger relationship and she *"...keeps an eye on things."* The consultant from CAD Consulting expressed a similar view pointing out that by working with his clients regularly he was able to identify potential issues. The consultant from AP Consulting stated that he tried to teach or explain to clients the importance of maintaining their systems. He told clients,

> *"Look, it's like your car, I mean, you don't just run your car until the wheels fall off it. You actually need to, now and again, give it some oil and look after it."*

The consultants from JK Consulting and OW Consulting highlighted the second area where consultants assisted clients with maintaining systems. The consultants worked with clients to ensure that systems, hardware and particularly the software were up-to-date. The consultant from OW Consulting said,

> *"So it comes back to that contact and because we maintain really good relationships with our clients, they'll nine times out of ten times, the minute there's an upgrade my phone will be bombarded."*

The second theme that emerged from the discussions with the consultants regarding the Supply competence centred on the assumption that sometimes the staff operating accounting systems in SMEs were not *'right for the post'*. The consultants worked to ensure that the technical skills of their staff were adequate for the needs of the SME. The consultant from ABS Consulting explained,

> *"...Sometimes you go to a company and they haven't really got the right person in the right job, and so you could be training a person on day-to-day accounts who hasn't done it before and they can often make a mess of things because it's not their background, they haven't got the experience and you'd only have so much time available normally because they're small businesses so they've got budgets. So you've so much time to try and train them on the use of the system when they don't have the concepts. So they're much harder to train, people that don't have the background or the competency."*

The consultant from JK Consulting also highlighted this point,

> *"In some cases it's not able... you can't really sort of say, I know that person's not really suited for this job. But in certain terms we will suggest training. So we need more training with this person or they need to come to a course or whatever. But it's basically... some people I get, probably more the other side of; okay, you're the business owner; you don't have time to be doing this, you're better off to be out doing something else. I think you should employ somebody. So I have two or three sub-contractors that I deal with that are out dealing with a lot of my clients; so we go and put them in and we say, hey, this person will come and work for you ten hours a week or five hours a week or whatever."*

The consultant from AP Consulting suggested that he would not mind being involved in the recruitment process to help SMEs hire the right personnel.

> *".... And another one of my favourite things of saying is that, if you're going to employ people at your office, they're going to be dealing with your accounting system, I wouldn't mind being involved somewhere in the employment process. I wouldn't mind maybe seeing the CVs that come back, or maybe sitting in on the interview of the three best people... And the main reason is that employers are hugely exposed to people claiming things that they are not entitled to claim."*

By developing on-going relationships with SMEs consultants are able to help them maintain their accounting systems and to obtain appropriate staff or train existing employees.

7.3.1.3.2 Deliver Solution Competence

To examine the impact on the Deliver Solutions competence consultants were asked to describe how they assist SMEs in finding a specific software solution to meet their requirements. It appears consultants usually recommended the appropriate software solution to SMEs by finding out what they wanted and by assessing the organisation and their skills. Then they installed the software often without having to do any major customisation, as there was no need or demand for this. Any customisation was in the area of reports and invoices.

Consultants trained the users mainly on a one-on-one basis to utilise the system and encouraged them to attend additional training courses. The consultant from JK

Consulting contended that on-going support was the way to ensure that users effectively used the system. The consultant from AP Consulting said he assisted with routines detailing what to do on a daily and monthly basis.

The consultants' response to how they put in place recovery, contingency and security processes to prevent the failure of SMEs were directly related to the accounting system. Each consultant indicated that SMEs were encouraged to apply and follow regular back-up procedures for the software database; unfortunately this advice was seldom followed. The consultant from JK Consulting indicated that she taught SMEs the process of not only backing up the accounting system, but also other areas like email communications.

It is concluded that consultants play a pivotal role in the Deliver Solutions competence often substituting for the lack of these abilities in SMEs. The main interest of SMEs is their core business; therefore, managers and CEOs have a tendency to focus on activities that relate to that aspect of their business. Management is unlikely to spend time developing skills in technical IT ability or to implement and configure accounting software. Consequently, consultants are seen as the source to provide such ability to SMEs.

7.3.1.3.3 Exploitation

In focusing on the impact of the Exploitation competence, consultants were asked how they assisted SMEs in maximising benefits obtained from implementing accounting software which include managing the benefits of accounting software, managing changes to maximise benefits, managing projects and developing inter-organisational collaboration with business partners (e.g. customers and suppliers).

The consultant from ABS Consulting expressed that training helped clients to maximise the benefits of the system by learning tricks of how to use the software. When discussing the use of accounting for collaborative purposes, the consultant noted that there was an incident where she worked on the configuration of collaboration services but was unable to reach completion of the project. It was noted that the need for collaboration services might be suggested by the consultant or by the client who requires the consultant to enable such functionality.

The consultant from AP Consulting posited that consultants assisted clients in maximising the benefits of their system by bringing organisations closer to their accountants. The consultant remarked that accountants could improve the actual business development of SMEs. He stated that some of his clients (mainly from the plumbing industry), wanted to create links with their suppliers, with this desire being initiated by the consultants and from the SMEs.

The consultant from JK Consulting stated,

> *" ... Making sure that they understand what they're doing so that they can understand the information going in. Look anybody can data entry and if you don't understand what you're doing then that's when mistakes get made and the information coming out is useless."*

The need for collaboration services resides mainly with electricians and plumbers. The consultant pointed out that she usually suggests such services to her clients. The consultant from OW Consulting felt that consultants helped SMEs to maximise the benefits from accounting software by first showing them what sort of benefits they could derive by implementing accounting software. The consultant also pointed out that

changes needed be made to the processes of organisations in order to derive additional benefits. However, such changes could not be introduced immediately after implementation, since the clients had to be allowed to work in their usual manner and be comfortable. After this was achieved, only then the consultant suggested changes,

> *"We don't do it the minute we put the system in is the one thing we don't do because its information overload for someone to be learning and new system and you changing their internal processes at the same time. So what we tend to do is put the system in, let them get used to doing the things the way they've always done them and then they'll say, we want to bring in job management. We've always partially done it but not quite. And so I'll go in and I'll say, right, how are you doing things now? And we'll work through it together. Right, this may need to change for you to get this information into here but once you've got it in here it can go multiple different places."*

7.3.1.4 Summary of Findings

From the results and analysis presented, one could contend that consultants assist SMEs in realising the potential and implications of implementing accounting software (Cragg et al., 2011). At the start of an implementation project, consultants assist SMEs by discussing with SMEs what they can achieve by implementing accounting software. In Phase-one and in this phase, it has been proffered that SMEs do not possess sufficient knowledge of accounting software to comprehend the implications of implementing accounting packages. Consultants therefore compensate for this lack of ability, which subscribes to the strategy and vision competence suggested by Eikebrokk and Olsen (2007).

From the results shown, one may assert that consultants assist SMEs in using

competencies that they already possess. It is further determined that consultants influence the ability of SMEs to manage processes that relate to the implemented system. The results also indicate that consultants compensate for SMEs' inability to define AIS architectures (technology and software) and to enhance SMEs' ability of to access IS knowledge in sourcing IT hardware. These abilities subscribe to the sourcing and alignment competencies of Eikebrokk and Olsen (2007).

The results also indicate that consultants influence the ability of SMEs in acquiring accounting software that impact on their business processes and in re-organising work processes to utilise the software. Consultants enhance or improve the ability of SMEs in competence process integration, which relate to the management of IT function (Eikebrokk and Olsen, 2007).

The results indicate that consultants work to develop on-going relationships with SMEs, which put consultants in a position where they are able to assist in the management and maintenance of accounting software, while developing the skills and abilities of the staff. The results indicate that consultants compensate for a lack of skilled staff by providing SMEs with staff to carry out duties that utilise accounting software.

The results further indicate that consultants enhance the ability of SMEs to exploit the benefits of accounting software. The consultants posit that by simply implementing accounting software, SMEs immediately improve their efficiency. It may be argued that by engaging consultants, the ability to exploit the use of accounting software further is enhanced. The consultant from JK Consulting highlights this point in noting that once SMEs are comfortable with using the system she introduces other uses for the system.

The results also indicate that consultants compensate for the ability of SMEs to deliver IS solutions by obtaining, implementing and integrating accounting software into the organisation. These areas are congruent with the IT management competence suggested by Eikebrokk and Olsen (2007).

In combining the two competencies frameworks used (Cragg et al., 2011 and Eikebrokk and Olsen, 2007) it can be concluded that consultants influence the following IS competences:

- Management of IT:
    - Ability to deliver AIS solutions
    - Ability to exploit the use of AIS
- Systems and Infrastructure:
    - Ability to manage the supply of AIS
- Sourcing and Alignment:
    - Ability of SMEs to define architecture and software needed for AIS implementation
    - Ability to integrate AIS with business processes
- Strategy and Vision:
    - Ability of SMEs to define the potential and implications of implementing AIS

7.3.2 Analysis of Interviews with SMEs

Three SMEs were interviewed in this phase of the data collection. Interviews were halted after analysis showed that the data had reached saturation. In this phase interviews with SMEs were stopped after three in-depth interviews were conducted; as at this point no new data was obtained relating to the areas of interest: IS knowledge and IS competencies. Three cases/interviews were deemed sufficient since the investigation was framed within the context of the implementation of accounting software, and the areas of interest related to the impact of consultants on the duties and tasks they performed (which was established in Phase-one of the study). The tasks and duties performed by consultants during the implementation of accounting software have already been established in Phase- one and from the consultant interviews of Phase-two). The argument has been posited that when consultants perform these tasks and carry out these duties they affect IS knowledge and IS competencies. The SME cases/interviews in this phase were used to *'verify'* the impacts derived or suggested by the consultant interviews. In following this reasoning after the third SME interview, it was determined that no new knowledge would be gained by conducting additional interviews.

Macro-competence	Competencies	EA Thompson	Ideco	Aman
Business and IS Strategic Thinking	IS Innovation			
	Business case and Investment Criteria			
	Including IS in Business Strategy			
	Information Governance			
Define IS Contribution	IS Alignment			✓
	Business Process Management			✓
	Define IS Requirements			
	Accessing IS Knowledge			
Define IS Strategy	Software Sourcing Strategy			
	IS Acquisition Processes			
	Technology Infrastructure Requirements			✓
Exploitation	Benefits Management		✓	
	Managing Change			
	Project Management	✓		
	Inter-organisational Collaboration			
Deliver Solutions	Application Development			
	Implementation and integration	✓	✓	✓
	Apply and Use Technology			✓
	Business Continuity & Security			
Supply	Manage IS Supplier Relationships			
	Information Asset Management and Maintenance			
	Staff development	✓		✓

Table 7.6: Impact of consultants on IS competences from in-depth discussions- SME perspective (✓ = Had an impact)

7.3.2.1 EA Thompson Manufacturing

There was no evidence to support the notion that the consultant enhanced or

compensated for the strategy and vision competence at EA Thompson. Mr Smith, the accountant, and a part-time employee who worked two days a week, initiated the business case and drove the project. If he is treated as part of the company, EA Thompson has the ability to define the business case since Mr Smith the accountant was the person responsible for establishing the business case. Mr Smith wrote several memoranda, which outlined his concerns with the old DOS system when he made the case for the organisation to consider a change to QuickBooks.

The ability to evaluate the potential of the accounting system was the responsibility of the accountant who first recommended that the company implement QuickBooks. Mr Smith contended that if a company, such as EA Thompson, was to effectively utilise their accounting system; it had to reveal potential new business opportunities. He was of the opinion that EA Thompson was unable to exploit the use of QuickBooks. In terms of budgeting, the accountant felt that the company budgeted and planned for IT, but the focus was on the production system, MIE TRACK. There was no planning in relation to the accounting system. Mr Smith said that MIE TRACK, the production system, was also capable of being used as a control system but the organisation had no plan to do this and was currently using the software only as a recording system, much like how they used the previous accounting system.

As mentioned before, EA Thompson had established an IT department and hired an IT manager. The organisation had hardware and other infrastructure in place; however the IT department was not instrumental in the implementation of QuickBooks. This was supported by the fact that Mr Smith was the one who knew about QuickBooks and accounting software and it was his recommendation that the consultant was engaged to implement the system.

Since it was the accountant who initiated the project, he played the pivotal role in the planning stages. The accountant afforded EA Thompson with abilities to define the IS requirements and to identify appropriate people to assist with the project. There was also no evidence to suggest that the consultant impacted (enhanced or compensated) EA Thompson's ability to define the IS strategy. In fact, the accountant may have provided EA Thompson with such abilities as indicated in the following response,

> *"I did not go to an outside consulting organisation because I knew that would be using a great hammer to crack a nut. I knew what was what and I was familiar with the various accounting systems…"*

The macro-competences Exploitation, Deliver Solutions and Supply (Cragg et al., 2011) map to IT Business Process Integration (Eikebrokk and Olsen, 2007) and encompass an organisation's ability to maximise the benefits of implementing IS through the IT management function. As part of the IT management function, the consultant manages the implementation of the project. The IT management competence also involves technical abilities and the consultant compensates for the lack of these abilities. In terms of implementation and integration the consultant installs and configures the system.

The final aspect of the IT Business Process Integration competence group relates to the ability of the organisation to supply accounting software. The discussions centred on the relationships that developed between SMEs and consultants. The relationship was a two way process between the accountant and the consultant. There was an "*excellent*" relationship between EA Thompson and the consultant.

EA Thompson was the largest of the SMEs interviewed. The company had an IT

department and a part-time accountant. It was anticipated by the researcher that the consultant would have a lesser impact on the number of competencies and knowledge assets. By carrying out various tasks and duties the consultant still influenced various knowledge assets and competencies at EA Thompson. These are identified as (Table 7.5):

- IT Management (Business Process Integration)
    - Project Management
    - Ability to deliver IS solution
    - Ability to supply AIS

It can be contended that the consultant impacted on the Management of IT competence (Eikebrokk and Olsen, 2007).

7.3.2.2 Ideco

The impact of consultants on IS competencies was explored during the interviews. Overall, it appears that the consultant did not contribute to or compensate for the strategy and vision competence at Ideco. The decision to implement MYOB was initiated by a suggestion from an employee, who was familiar with the MYOB software. Consequently, the organisation was looking for someone to supply and implement MYOB. Although no new business opportunities emerged from Ideco's use of MYOB. Jim stated,

> *"...We actually learnt from it (using MYOB) now that we can position the company with what's coming in, what's going out, our profit and loss; we actually know how it is going."*

The consultant did not appear to have assisted Ideco with the sourcing and alignment competence. At the time of the implementation, the management did not know how the software would fit in with the business. Jim in hindsight noted,

> *"We were just getting into the system; whereas we should have actually sat down and see what the company does and what software do you recommend."*

This highlights that there were no formal discussions or approaches geared at aligning the IS with the business's priorities.

As the organisation discovered what they wanted or needed, the consultant assisted by *"tweaking"* the software. The software was customised to match the way Ideco conducted operations; specifically the way they processed stock. The consultant provided an add-on program to assist the organisation with this process. It may be said that the consultant compensated for technical know-how that Ideco did not possess. The issue of not knowing what they needed is common in SMEs, and relates to their nature as lacking knowledge. Jim revealed that at the time the implementation was being initiated they lacked the knowledge to specify the requirements for the software. Over time they realised what they needed and reached the point where they could clearly specify what they need in an accounting system. This was not the case at the time MYOB was implemented. Jim expressed,

> *"We did not know what we were doing because we already had a system there, it was pretty basic and we did all that. What we should have done is actually started from scratch. These are codes we want; we want to put these purchases to that code and so on. None of that was setup. We just brought up our own ones; as we have gone along we have tweaked it. And every time she (the consultant) comes in we tweak it a little more."*

Ideco followed a typical small business approach to the software sourcing strategy and acquisition process. The software MYOB was recommended by an employee and Jim searched the phone book for a consultant to supply and implement the software. The consultant did not assist with the acquisition process. The consultants interviewed in Phase-one and Phase-two suggest alternatives, if any software was inappropriate for the organisation. This appears not to have been the case for Ideco where the software was implemented using existing hardware and infrastructure. The case of Ideco does not support the premise that consultants contribute to the development of any of these abilities.

Jim said his company benefited from using MYOB,

> *"We can access it quicker than what we used to. We used to get the accountant to do it because we weren't up to speed on it. Now we go in and go bang, I am looking for this and get a report that can go back; I can go back 12 months and compare. And we have a broad base now."*

Jim did not feel that the consultant assisted them in managing the benefits from the system. He pointed out that this was probably due to the fact that they did not ask for such assistance. He noted that they gained benefits from seeing how journal entries were used as the consultant would do the journal entries and *"tidy things up"* when she visited the company.

From this case it also appears that the consultant did not have an impact on these abilities within the organisation either by contributing to or compensating for the abilities. However, the consultants did aid or contribute to Ideco achieving benefits

from using the software.

The consultant carried out the implementation process, which entailed supplying, installing and configuring the software and importing data from the previous system. In addition, the consultant customised the software by providing an add-on to handle the way that Ideco managed their stock. In general, the consultant compensated for this group of abilities that were lacking at Ideco.

The consultant built a strong relationship with Ideco through Jim's business partner. She established an on-going relationship with the company and visited twice a year. The relationship with Ideco was such that *"Arlene can ring her at any time when she needs to."* Their knowledge is supplemented either by their accountant or by the consultant on her regular visits. Despite this very informal setup Jim still believed that the organisation's accounting skills and ability to use MYOB were sufficient for the needs of Ideco. It may therefore be concluded that based on the results of this case the consultant has had an impact on the following competencies (Table 7.5):

- Exploitation
    - Derive benefit from the software
- IT Management
    - Ability to deliver IS solution

7.3.2.3 Aman Manufacturing

There was no support from this case to purport that the consultant contributed or compensated for the group of competencies strategy and vision. In terms of the business case, the management of Aman Manufacturing needed a system to help manage the

growth that they were experiencing at the time. Management also needed to know more about what was happening. The management of Aman Manufacturing searched for the right product and spoke to their accountant about the reporting and growth needs of the organisation. The accountant suggested that Aman Manufacturing implement MYOB.

Aman Manufacturing possessed abilities congruent with the sourcing and alignment competence. The management of Aman Manufacturing turned to their accountant for assistance with their need to manage the growth and reporting needs of the organisation. However, since their knowledge of accounting software was limited, the management staff at Aman Manufacturing relied on the accountant/consultant to assist with aligning the IS with the needs and priorities of the business at the time. When they approached the accountant for assistance, they had established requirements for the software.

The consultant also assisted Aman Manufacturing with changes to their invoicing process and with aligning their accounting system to ensure that the codes they used matched theirs. Overall, the consultant contributed to this group of abilities. The consultant compensated for the lack of abilities surrounding sourcing and alignment.

The implementation of MYOB required new hardware, which was beyond the ability of Aman Manufacturing. Their IT contractors supplied the new hardware, which were mostly computers. Overall, Aman Manufacturing possessed some of the abilities considered by the macro competency sourcing and alignment. The consultant contributed by compensating for the ability to identify appropriate hardware infrastructure requirements. The management at Aman Manufacturing believe that to get the most out of the software they needed to employ someone who knew the program well and would work full-time on it. To this end, Amanda was employed as the office

administrator. The management also believe that they benefited from MYOB as they had more accurate data, which provided more informative reports like the profit and loss statements. They were able to manage the process of meeting and reviewing targets set by the organisation for each quarter. The management staff at Aman Manufacturing, shared among Jacques, Martin and Cathy, managed the project. Martin and Jacques pointed out that they were able to make management decisions and answer important questions like, *"Do we need to shave something, do we need to part something up. Do we need to purchase something?"*

Despite being aware of the possibility of external linkages through the use of MYOB, the company had not implemented any of these features. Overall there is no evidence to suggest that the consultant enhanced or compensated for the competence IT management in Aman Manufacturing.

Management was given on-site training by the consultant in addition to hands-on sessions with the consultant *"shadowing"* and being a *"buddy"* in the learning process. This was how the staff at Aman Manufacturing learned how to use the system. In terms of continuity and security, the company had implemented a backup and software recovery plan. The consultant therefore compensated for the competencies associated with the competence deliver solutions.

Aman Manufacturing maintained a relationship with the vendor and their consultant/accountant, which involved the annual updates to the software. Their relationship with the accountant/consultant was now that of accountant-client. Initially, the consultant played a key role in implementing the system and training staff on the use of the software. The company and the consultant worked to double check codes and

ensure that information was entered correctly in the system. The consultant assisted with queries such as where to code *"random purchases"*. However Martin noted, *"Now that we know where everything is supposed to go, we don't have much relationship with them."*

Aman Manufacturing maintained its hardware by upgrading it every 2 years which was done in conjunction with their hardware suppliers. It may be concluded, based on the results of this case that the consultant had an impact on the following competencies (Table 7.5):

- Sourcing and alignment
    - Define the IS contribution
    - Define IS strategy
- Management of IT
    - Ability to deliver IS solution
- Systems and Infrastructure
    - Supply

7.3.3 Cross-case Analysis - SMEs

Overall the SMEs show little support for the impact of consultants on the seven competencies considered. The competencies are placed in three major groups: Strategy and Vision, Sourcing and Alignment, and IT Business Process Integration following Eikebrokk and Olsen (2007). These results are presented in Table 7.6. The results of the in-depth discussions using the competence framework adapted from Cragg et al. (2011) are shown in Table 7.7.

		Competence (Eikebrokk and Olsen, 2007)	EA Thompson	Aman	Ideco	Combined
Strategy and Vision	**Concept of AIS**					
	1	Knowledge of how AIS can be of value to the business	✗	✓✓	✓	✓
	2	Knowledge of how competitor(s) use AIS to support similar business areas	✗	✓	✗	✗
	3	Good understanding of AIS	✓✓	✓	✓	✓
	Strategic Planning					
	1	Knowledge of strategic planning		–	✓	✗
	2	Well-developed set of strategic planning techniques	✗	–	–	✗
	3	Good understanding of strategic planning	✗	✗	–	✗
Sourcing and Alignment	**Sourcing Competencies**					
	1	Knowledge on outsourcing of activities to other companies	NR	✓	✗	✗
	2	Knowledge on how to use competencies in business partners	✗	✓	✗	✗
	Alignment Competencies					
	1	Business and IT managers agree on how IT contributes to business value	✗	✓	✗	✗
	2	Effective exchange of ideas between business people and IT people.	✗	–	✗	✗
	3	Good at using of competencies they already have	✓	✓	✓	✓
	4	Good at using competencies represented in business partners	NR	✓	NR	NA
IT Business process Integration	**Competencies in Process Integration**					
	1	Working with the impact of the AIS on business processes	✗	✓✓	✗	✗
	2	Good at reorganising work to utilise new AIS	✗	✓✓	✗	✗
	Management of IT					
	1	The company's IT resources are now effectively managed	✓✓	✓	✗	✓
	2	Achieve anticipated benefits of AIS investment	✗	–	✗	✗
	System Infrastructure					
	1	Infrastructure is flexible in relation to company's future needs	✓✓	✓	–	✓

Table 7.7: Impact of consultants on IS competences - SME perspective (✓✓= Strongly Supported, ✓ = Supported, ✗ = Not Supported, NR = No Response, NA = Not Applicable)

Macro-competence	Competencies	EA Thompson	Ideco	Aman	Combined
Business and IS Strategic Thinking	IS Innovation				
	Business case and Investment Criteria				
	Including IS in Business Strategy				
	Information Governance				
Define IS Contribution	IS Alignment			✓	
	Business Process Management			✓	
	Define IS Requirements				
	Accessing IS Knowledge				
Define IS Strategy	Software Sourcing Strategy				
	IS Acquisition Processes				
	Technology Infrastructure Requirements			✓	
Exploitation	Benefits Management		✓		
	Managing Change				
	Project Management	✓			
	Inter-organisational Collaboration				
Deliver Solutions	Application Development				
	Implementation and integration	✓	✓	✓	✔
	Apply and Use Technology			✓	
	Business Continuity & Security				
Supply	Manage IS Supplier Relationships				
	Information Asset Management and Maintenance				
	Staff development	✓		✓	✔

Table 7.8: Cross-case analysis of Impact of consultants on IS competences from in-depth discussions- SME perspective (✓ = Had an impact)

7.3.3.1.1 Strategy and Vision

Strategy and vision consisted of two competencies, the concept of AIS and strategic planning. The SMEs supported the idea that by engaging consultants they generally

gained an understanding of accounting information systems. There was some support for the idea that by engaging consultants SMEs gained a high level of knowledge about how accounting software can be of valuable to the organisation. There was no support for the idea that SMEs gain knowledge about how their rivals use accounting software.

The second competence strategic planning was not supported by the SME data since none of the SMEs expressed that they gained the ability to do strategic planning by having engaged a consultant.

In-depth interviews were conducted to investigate the impact of consultants. The competence group Business and IS Strategic Thinking (Cragg et al., 2011) relates to Strategy and Vision and was the focus of the discussions. There was no evidence to suggest that consultants impact this competence group. The only possible impact was in the case of Aman Manufacturing where the SME turned to the accountant (also the consultant for the project) for advice on what system to use. However, when Aman Manufacturing turned to the accountant it was in his capacity as accountant, rather than consultant.

7.3.3.1.2 Sourcing and Alignment

The second group of competencies: Sourcing and Alignment also consisted of two competencies, sourcing competencies and alignment competencies. The SMEs did not support the idea that the engagement of consultants affects their abilities on outsourcing or knowledge of how to use competencies in business partners. Four items were used to examine the alignment competence. Only one is supported by the SME data. The SMEs believed that by engaging consultants they were better able to use the competencies they possessed. Overall there was no evidence to support that engaging consultants

influences SMEs' ability to source and align accounting software.

The impact of consultants was further examined in the in-depth interviews by focussing on the Define IS Contribution and Define IS Strategy competences (Cragg et al., 2011). The consultants influenced only one competence. Implementation of accounting software usually involved some changes to processes especially where it was a company moving from having no system to implementing a computerised system, as in the case of Aman Manufacturing. It was found that consultants assist SMEs with the changes that result from implementing accounting software. This was evident in two of the three SME cases; EA Thompson was the only SME where there was no evidence that these competencies were influenced by the consultant.

It may be concluded that in terms of consultants influencing the sourcing and alignment ability of SMEs; consultants help SMEs in implementing changes needed to facilitate business processes to utilise the software.

7.3.3.1.3 IT Business Process Integration

The third and final group, IT Business Process Integration contained three competencies: Process Integration, Management of IT and Systems Infrastructure. The SME data did not support the notion that in engaging consultants SMEs gained or improved their ability to reorganise and impact on implementing accounting software on business processes.

There was little support for the Management of IT competence. This suggests that SMEs did not feel that by engaging consultants their ability to manage the IT function is improved. However, there was some support for the idea that by engaging consultants

the companies' IT resources were now well managed.

This impact of consultants was further investigated in the in-depth interviews by focussing the discussion on Exploitation, Deliver Solutions and Supply (Cragg et al., 2011) competencies. In all of the cases consultants installed, configured and customised the accounting software. Consultants assisted SMEs when it came to specifying which software solution should be used, as in the case of Aman Manufacturing. Consultants compensate for a lack of ability in SMEs to install, configure and customise accounting software.

There was also some evidence to suggest that consultants also enhanced or improved SMEs' ability to use accounting software. This was the case for the SMEs EA Thompson and Aman Manufacturing where the consultants trained staff to utilise the system. None of the cases supported the idea that consultants assist SMEs with business continuity and security practices.

It may therefore be concluded that consultants compensate for this group of competencies in SMEs, particularly SMEs' ability to implement and integrate software as well as apply and use technology. These relate to the Exploitation and Deliver Solution competences (Cragg et al., 2011) and also the IT Management competence (Eikebrokk and Olsen, 2007).

In all of the cases, consultants influenced the relationship between SMEs and consultants. Consultants play a vital part in developing relations with SMEs. It may therefore be concluded that consultants are a part of the process of developing relationships.

7.3.3.1.4 Summary of Findings

It was found that consultants did not have an impact on the strategy and vision competence. However, it was found that consultants did assist SME to understand the concept of accounting software. In this regard, consultants compensate for this specific ability.

The group IT business process integration (comprising of the competencies Management of IT and Competence in process integration) relates to the three groups: exploitation, deliver solutions and supply (Cragg et al., 2011), as previously noted. There was support for the idea that consultants have an impact on the management of IT competency. This was revealed in the interviews since consultants delivered the accounting solutions to SMEs. They installed and integrated the software and assisted SMEs in making use of the software. There was also support for the contribution consultants make to assist SMEs with process changes resulting from the implementation of accounting software. This relates to the process integration competency.

From the SME interviews, there was no support that consultants impacted on the competencies sourcing and alignment. It is therefore concluded that consultants have an impact on the following IS competencies which are derived by combining both IS competencies frameworks):

- Strategy and vision
    - Concept of AIS
- Management of IT
    - Ability to deliver AIS solutions
- Systems and Infrastructure

- Supply

7.4 Part III - Cross-case Analysis Consultants-SMEs

This section presents the cross-case analysis of the consultant interviews and SME interviews. The results are compared to provide a holistic view of the IS knowledge assets and IS competencies that emerge from the interviews.

The main purpose of this phase of the study was to determine the impact that consultants have on IS knowledge assets and IS competencies in SMEs during the implementation of accounting software. The results so far have confirmed the initial proposition that consultants do effect IS knowledge assets and IS competencies in SMEs.

Bearing in mind that SMEs and consultants view the implementation process from different perspectives, an attempt was made to determine which knowledge assets are primarily affected/influenced by consultants and which IS competencies are affected/influenced by consultants. This produced a model of the proposed impact consultants have on SMEs and is represented in terms of IS knowledge assets and IS competencies. The proposed influences/effects of consultants on IS knowledge assets and IS competencies in SME were further investigated in phase 3 where the applicability of the proposed influences were tested by applying them to an on-going implementation project.

7.4.1 Knowledge Assets

The consultants all supported the three knowledge asset areas, however, the SMEs were less supportive. This may be reflective of the polar extremes where consultants

attempted to highlight (over-state) their impact and SMEs did the opposite (under-state) the impact of consultants. The differences in response may also be due to the skills, experience and nature of the person interviewed. In any event, it is worth noting that the interviewees from SMEs did not feel that they gained any hands-on experience from the accounting software installed by the consultants. It is also worth noting that SMEs, on their own, did not feel that they were able to improvise or acquire new knowledge. One reason for this may be the fact that it takes time for users of the system to become fully competent with the software. It is also likely that with three cases it would be difficult to discover strong enough reasons for the differences.

The areas of agreement are also useful. For experiential knowledge assets the two groups agree on trust in the consultants and enthusiasm in employees. For routine knowledge assets the groups agreed that employees gain sufficient knowledge to carry out daily activities using the system, and for systemic knowledge assets they agree on access to the information stored in databases.

Results of the cross-case analysis are presented in Table 7.9.

	IS Knowledge Assets	Consultants	SMEs
Experiential Knowledge Assets	Employees gain hands-on experience with using the accounting software	✓	×
	Employees gain experience in accounting	✓	-
	Employees learned to improvise as needed when using the accounting software	✓	×
	Employees have a high level of trust in the consultant	✓	✓
	Employees were enthusiastic about using the accounting software	✓	✓
Routine Knowledge Assets	Employees are now fully aware of the importance of knowledge in the routinely using the accounting software.	✓	-
	Employees are now able to explore new knowledge using the accounting system	✓	×
	Employees gained sufficient knowledge (know-how) to carry out day-to-day activities using the accounting software	✓	✓
Systemic Knowledge Assets	Employees now have easy access to information stored in the accounting database	✓	✓
	Employees received well-organised accounting software documentation (Books, CDs, DVDs, Magazines, Web resources, Manuals)	✓	-

Table 7.9: Comparison between consultants' and SMEs on knowledge assets (✓ = Supported, × = Not Supported, - = Undecided)

7.4.1.1 Experiential Knowledge Assets

The consultant cases and SME cases both confirm that consultants impacted experiential knowledge assets. Experiential knowledge assets are tacit knowledge built through shared experiences. It is argued that employees and consultant share the experience of AIS implementation and knowledge of this type is '*passed-on*' from consultants to SMEs. This is primarily in terms of hands-on as well as know-how knowledge surrounding accounting software.

Hands-on knowledge is gained by closely working with consultants while using the

system. As highlighted by the case of Aman Manufacturing, the consultant '*shadowed*' the employees as they learned to use the system, which allowed them to acquire hands-on knowledge of the system. SMEs gain know-how through the shared experience of implementing accounting software. Consultants share knowledge of how-to through mentoring and one-on-one sessions, which allow knowledge to flow from consultant to SME.

Training which can be formal or informal was the main method by which knowledge was transferred from consultant to client. It can be conducted informally as in one-on-one sessions or formally as in organised '*class-room*' type training courses. Telephone support was also a means where such knowledge was transferred from consultants to SMEs. It was previously noted than communication and interaction are very good ways of transferring knowledge (Dawson, 2005). These activities dominate the implementation process. It is concluded, that consultants during the implementation process have an influence on experiential knowledge assets in SMEs.

7.4.1.2 Routine Knowledge Assets

In the case of routine knowledge assets however, the interviews with the consultants supported the idea that consultants affect routine knowledge assets, while the interviews with SMEs did not support this idea. Although this appears to be a contradictory finding, it is in fact not so. The interviews with consultants in phase-two did not initially appear to support routine knowledge assets in the form of formal routines in SMEs. However, a deeper analysis of the data revealed that consultants established informal routines. The consultants did not feel that they established routines (formal) in SMEs; however, they did establish informal routines (see Section 7.2.1.2). It is for this reason that the impact on routine knowledge assets is supported by the consultant data.

It is likely that the lack of support for routine knowledge assets by the SME data relates to the idea of the lack of formal routines established by consultants. However, as previously highlighted informal routines were normally created or suggested in relation to the use of the software. For example, SMEs were given detailed steps on what should be done on a daily or monthly basis. It is for this reason that it is concluded that consultants have an influence on routine knowledge assets in SMEs.

7.4.1.3 Systemic Knowledge Assets

The consultants and SMEs supported the idea that consultants affect systemic knowledge assets, which is knowledge gained from manuals, CD, DVD and knowledge held in databases. The consultants provide some of these materials however they are rarely used by SMEs. It was discovered that consultants provided SMEs with additional reference documents including notes and newsletters and also ensured that SMEs were capable of accessing database information using reports. Hence it is concluded that consultants have an effect on systemic knowledge assets in SMEs.

7.4.1.4 Summary

Overall, consultants played a key role in having an effect on the IS knowledge assets of SMEs. They help to create/transfer various IS knowledge during the implementation of accounting software. Considering the objectives of this phase, this study has shown that consultants have an effect on IS knowledge assets particularly in experiential knowledge assets which relate to know-how and hands-on skills. Consultants also affect systemic knowledge assets and routine knowledge assets in terms of building informal routines surrounding the use of IS and providing reference material.

In summary, consultants have an impact on knowledge assets. Based on the interview data and subsequent analysis it is believed that even though there may be differences between consultants and SMEs the consultants impact the following IS knowledge assets:

- Experiential knowledge assets
- Routine knowledge assets
- Systemic knowledge assets

7.4.2 IS Competencies

When comparing the responses on IS competencies there were only three areas where consultants and SMEs disagreed. It required a deeper investigation to ascertain reasons for the differences. These areas of disagreement are: the competencies in process integration, the ability to work with the impact of AIS on business processes and the ability to reorganise work to utilise new AIS. In management of IT, the two groups disagreed on the company's IT resources being effectively managed. However, based on what was learned from the processes surrounding the implementation process it is likely that interviewees in SMEs did not need to learn how to integrate the accounting system with the business processes as the consultants took care of such activities. Therefore, there would be no effect on their abilities to do such. In the management of IT resources the same is likely true. SMEs probably rely on either the consultant and other outside parties hence would not note an effect.

Therefore, when it comes to IS competencies the effect of consultants is either to compensate or enhance the abilities. Where there is agreement and support it is likely that consultants enhance that ability. Where there is no agreement, it likely means that

the consultants compensate for the ability.

The results of the cross-case analysis using the adapted Eikebrokk and Olsen (2007) framework are presented in Table 7.10. The cross-case comparisons or analysis of the Eikebrokk and Olsen (2007) framework and the Cragg et al. (2011) framework are presented in Table 7:11.

	IS Competencies	Consultants	SMEs
Strategy and Vision	**Concept of AIS**		
	Knowledge of how AIS can be of value to the business	✓	✓
	Knowledge of how competitor(s) use AIS to support similar business areas	×	×
	Good understanding of AIS	NA	✓
	Strategic Planning		
	Knowledge of strategic planning	×	×
	Well-developed set of strategic planning techniques	×	×
	Good understanding of strategic planning	NA	×
Sourcing and Alignment	**Sourcing Competencies**		
	Knowledge on outsourcing of activities to other companies	×	×
	Knowledge on how to use competencies in business partners	×	×
	Alignment Competencies		
	Business and IT managers agree on how IT contributes to business value	NA	×
	Effective exchange of ideas between business people and IT people.	NA	×
	Good at using of competencies they already have	✓	✓
	Good at using competencies represented in business partners	×	×
IT Business Process Integration	**Competencies in Process Integration**		
	Working with the impact of the AIS on business processes	✓	×
	Good at reorganising work to utilise new AIS	✓	×
	Management of IT		
	The company's IT resources are now effectively managed	×	✓
	Achieve anticipated benefits of AIS investment	×	×
	System Infrastructure		
	Infrastructure is flexible in relation to company's future needs	NA	✓

Table 7.10: Comparison between consultants' and SMEs on competencies (✓ = Supported, × = Not Supported, NA = Not Applicable)

Survey Questions		Group of competences (Eikebrokk and Olsen, 2007)	Macro-competence (Cragg et al., 2011)	In-depth discussions	
Consultants	SMEs			SMEs	Consultants
✔	✔	Strategy and Vision (*Concept of AIS*)	Business and IS Strategic Thinking	✗	✔
✗	✗	Sourcing and Alignment	Define IS Contribution	✗	✔
			Define IS Strategy	✗	✔
✔	✔	IT Business Process Integration (*Management of IT) (Systems and Infrastructure)*	Exploitation	✗	✗
			Deliver Solutions	✔	✔
			Supply	✔	✔

Table 7.11: Cross-case comparison of the impact of consultants on IS competencies (✓ = Supported, ✗ = Not Supported)

It is noted from the interviews there is some agreement between consultants and SMEs on the competences or abilities that are influenced by consultants. From the interviews, both parties agree that consultants help to overcome the lack of ability of SMEs to provide or deliver accounting solutions. This is intuitive since the reason SMEs use consultants in the first place is because of their inability to find and implement AIS solutions.

Consultants and SMEs agree that consultants impact the ability of organisations to integrate accounting software with business processes. These relates directly to the *'nature'* of SMEs referred to throughout this research. SMEs lack IS expertise and therefore lack the above abilities. It is not expected that SMEs should be able to implement accounting, that is, have the technical skills and ability to do it on their own. It was previously noted that managers of SMEs would prefer to focus on the business and leave such activities to the experts. SMEs also lack the ability to solve problems; it was noted in the interviews with consultants that some SMEs would be aware they have

a problem but would not understand the problem. SMEs also lack knowledge of accounting solutions to the extent that they do not know what system would meet their needs. From the interviews it was seen that SMEs followed the recommendations of others on what solution they would implement. It is further argued that implementing accounting software involves more than installing and configuring the software, as the system must be aligned with processes within the business. It was shown from the interviews that SMEs are unable to do this. In some cases the accounting package is modified to fit the business and in others the way the business operates is changed by the implementation of the accounting package.

The interviews with SMEs revealed support for the influence of consultants on the concept of AIS competence, which relates mainly to SMEs understanding the value of implementing AIS. In the in-depth discussions, the ability of SMEs to define the potential and implications of implementing AIS was examined. It is noted here that the concept of AIS is related the ability of SMEs to define the potential and implications of implementing AIS. There is agreement between the groups as the consultant interviews supported the idea that they enhanced the ability of SMEs to define the potential and implications of implementing AIS.

The consultant data reveal other abilities that were not captured in the SME interviews. This does not mean that consultants do not have an impact on these abilities. It is noted (Chapter Four) that the reason for the implementation of the accounting package as well as the level of skills and abilities present in SMEs determine the services that are provided by consultants. Although these abilities do not emerge from the data, it does not mean consultants do not affect them. The best way to explain this is perhaps to consider the implementation process. The same steps are carried out during each

implementation, despite the situation that is present in the SME. However, the extent to which the activities of consultants are needed depend on the implementing company. It has been argued before that understanding the tasks and duties performed during the implementation process serve as an ideal way to study the effect of consultants.

The consultant interviews revealed that they impacted on the ability of SMEs to exploit the benefits of using accounting software and the ability of SMEs to manage the supply of accounting packages. It is noted that as part of the implementation process consultants ensure that SMEs gain extra benefits by suggesting additional features of the system to be implemented. By doing this consultants aid SMEs to exploit accounting software beyond the initial purpose for implementing the system. It was noted that implementing collaboration features of accounting systems is one such area where consultants introduce extra benefits to SMEs.

Consultants actively seek to develop on-going relations with SMEs. It is through on-going relationships that consultants are able to assist SMEs to maintain their accounting systems and manage the supply of accounting software and related technologies. Despite not being identified in the interviews with SMEs these two areas are still considered under the competency management of IT.

The other area that emerges from the consultant interviews that is not identified by the SME interview is the effect consultants have on the ability of SMEs to define the hardware architecture and software needed for accounting software implementation. It has already been shown that SMEs are not knowledgeable in accounting packages to know which one is best and usually turn to others for assistance. In some cases they received assistance or advice from accountants and in other cases from friends and

employees. From the first phase it is noted that they also got assistance and advice from consultants. From the interviews it is revealed that SMEs are also not knowledgeable about the hardware and architecture requirements of accounting software. This knowledge resides with the consultants. In two of the cases there was no need for hardware, while in the other case the consultant recommended the hardware that was needed for the implementation. The SMEs did not immediately turn to consultants for advice to carry out the implementation, and advice on accounting packages came from accountants and employees. It is still felt that consultants have an effect the ability of SMEs to define the architecture and software needed for accounting software implementation. Consultants compensate for this ability.

Based on the interview data and combining the competencies of the two frameworks used by this study, it is concluded that consultants influence the following IS competencies:

- Strategy and Vision
- Sourcing and Alignment
- Systems and Infrastructure
- Manage of IT

7.4.2.1 Strategy and Vision

The name/term strategy and vision is derived from Eikebrokk and Olsen (2007). This competence relates to the ability of SMEs to engage in business and IS strategic thinking related to the implementation and use of IS (see Cragg et al., 2011).

7.4.2.2 Sourcing and Alignment

The name/term sourcing and alignment is derived from Eikebrokk and Olsen (2007). This competence during the implementation of IS, relates to the ability of SMEs to gain access to relevant IS knowledge. It also relates to the ability of SMEs to establish/determine a software sourcing strategy for accounting IS. It further relates to the ability of SMEs to determine the infrastructure requirements for accounting IS (see Cragg et al., 2011).

7.4.2.3 Systems and Infrastructure Competence

The name/term systems and infrastructure competence is derived from Eikebrokk and Olsen (2007). This competence relates during the implementation of accounting IS projects relates to the ability of SMEs to manage the supply of accounting IS (see Cragg et al., 2011).

7.4.2.4 IT Management Competence

The name/term IT management competence is derived from Eikebrokk and Olsen (2007). This competence during the implementation of accounting IS projects relates to the ability of SMEs to implement and integrate accounting IS into the firm. It also relates the ability of SMEs to use accounting IS and to the ability of SMEs to exploit the use of accounting IS by maximising the benefits of IS (see Cragg et al., 2011).

7.4.3 Emergent Model of the Impact of Consultants

This phase of the study focused on the impact of consultants on IS knowledge assets and IS competencies in SMEs during the implementation of IS, in particular accounting software. Combining all that has been learned from the interviews with consultants and

SMEs, it is concluded that as a result of the implementation process consultants have an effect on SMEs IS knowledge assets and IS competencies. Based on the results of the interviews, the following figure is developed depicting the impact of IS consultants on IS knowledge and IS competencies in SMEs.

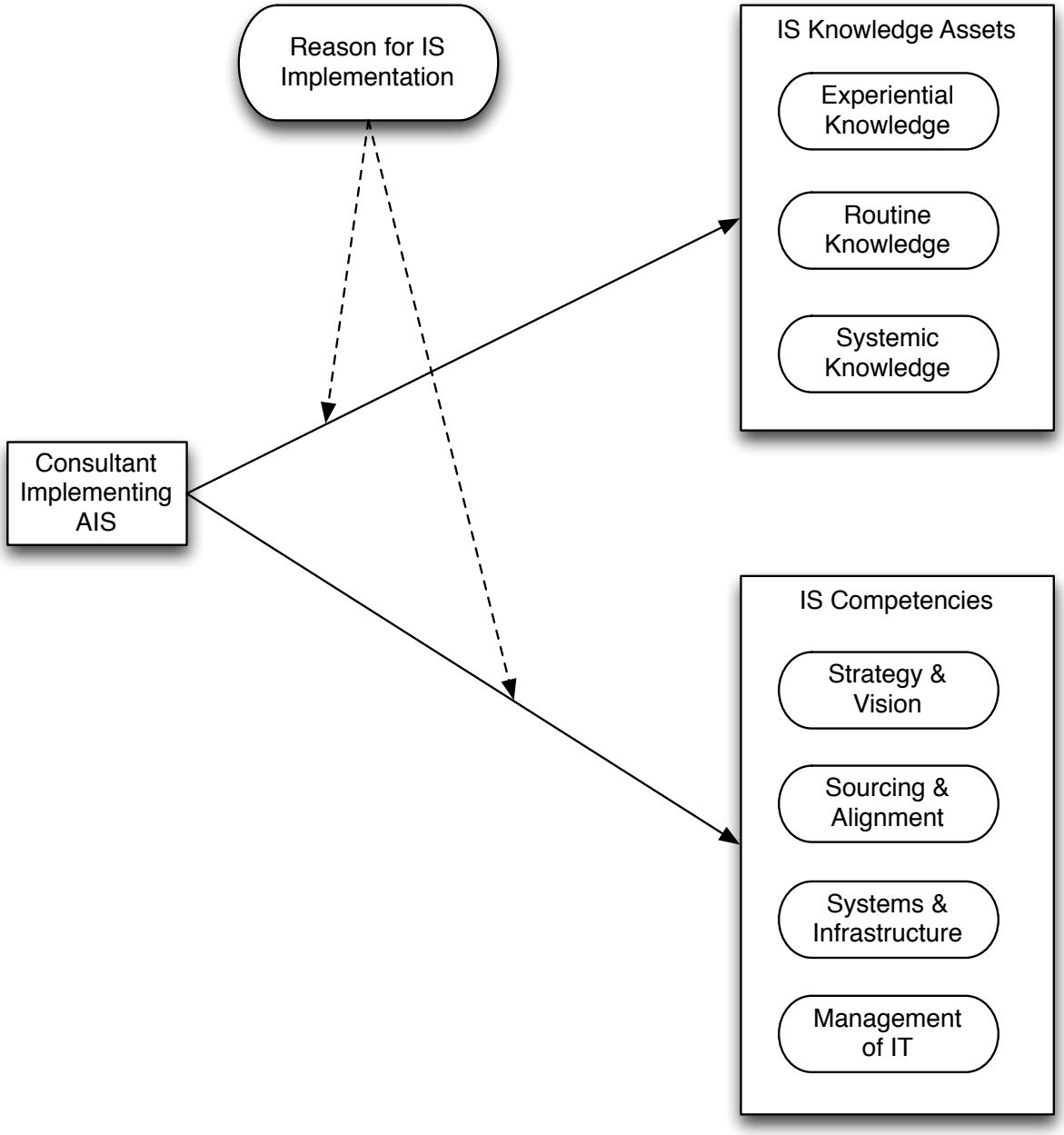

Figure 7.1: Impact of IS Consultants on IS knowledge assets and IS competencies

The diagram indicates that from the implementation process it is expected that IS

knowledge assets of the SMEs will be affected. These types of knowledge will consist of experiential knowledge assets, routine knowledge assets and systemic knowledge assets. The diagram indicates that IS competences will also be affected. These IS competencies are: strategy and vision, management of IT, systems and infrastructure and sourcing and alignment. The diagram also suggests that the reason for the implementation project may act as a modifier to the IS knowledge assets and IS competencies that consultants have an impact on. The dotted arrow in Figure 7.1 shows this. This was derived from the interviews with consultants presented earlier in this chapter and in Chapter Six.

Chapter 8 presents the results of Phase-three of data collection. Data were collected to further investigate the expected impact of consultants on SMEs by applying the above model to an on-going implementation project.

8 PHASE THREE

8.1 Introduction

This final phase of data collection builds on what has been learned throughout the course of this study so far. The first phase of data collection was exploratory and was used to understand the role played by consultants as well as develop emergent themes for further study. The second phase of data collection was used to focus on the emergent themes of IS knowledge assets and IS competencies.

This chapter presents the objectives, research design, results and analysis of the final phase of data collection. In this phase a longitudinal study was conducted in which an implementation project involving the use of a consultant was studied in detail. The purpose of this phase was to confirm or disprove the model derived at the end of the Chapter 7. A longitudinal design was chosen as this phase was designed to take into consideration an entire implementation project and observe how consultants affected IS knowledge and abilities in SMEs. An ideal way to achieve this goal was to observe the IS knowledge and abilities of SMEs at the start of the project and to compare them at the end of the project. Therefore, a longitudinal design served this purpose best.

The project involved one SME that will be known as Edgehill Care, and the consulting company that will be known as Vision Consulting. The details of the project are presented and discussed before the results are presented. The results will show that the consultant has an impact on experiential, routine and systemic knowledge assets in the implementing SMEs. They will also show that the consultant has an impact on some of the proposed IS competencies. This case provides evidence that the impact of

consultants on SMEs may be explained by considering the effect that consultants have on IS knowledge assets and IS competencies.

Chapter 8 includes the following sections:

8.2 Propositions

The impact that consultants have on IS knowledge and IS competencies in SME was presented in Chapters Five and Six. It was determined that consultants contribute to three types of knowledge assets in SMEs: experiential, routine and systemic. Additionally, it was determined that consultants also influenced IS competencies, in particular five groups of competencies were found to be influenced by consultants: Competencies relate to Strategy and Vision; competencies relate to Sourcing and Alignment of IS; competencies relate to IT business process integration; competencies relate to Systems and Infrastructure; competencies relate to IT management.

Several propositions were made regarding the impact that consultants have on IS knowledge assets and IS competencies in SMEs. These propositions, derived from the model presented in Figure 8.1, were presented and tested to determine their applicability to the IS implementation process. This was achieved by examining an accounting system implementation project from the start of the project to the end or sign-off, and

by observing the changes that took place in the IS knowledge assets and IS competencies of the company.

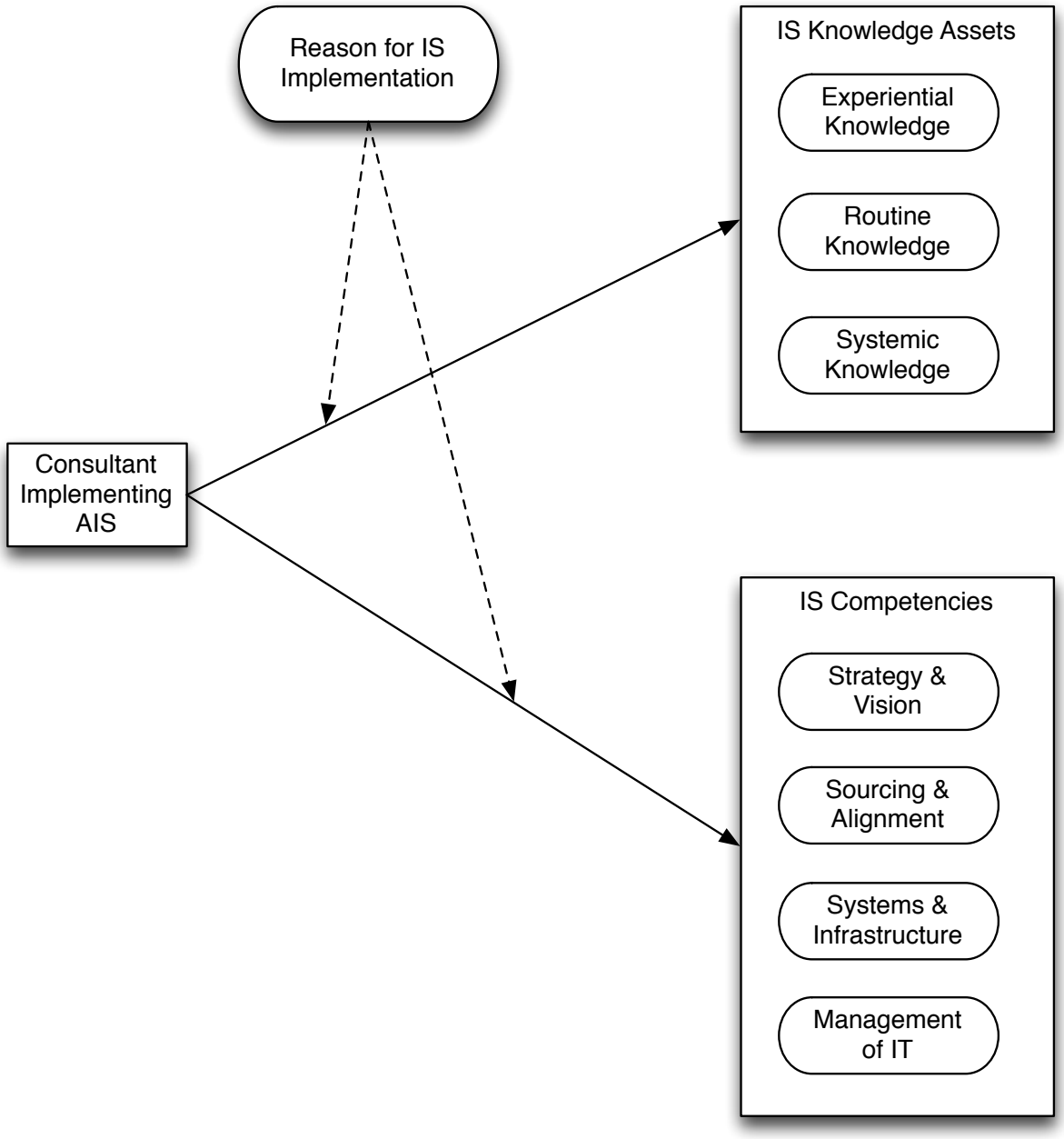

Figure 8.1 The proposed impact of IS consultants on SMEs

Proposition One:

Consultants help to create/transfer experiential knowledge assets to SMEs during the implementation of AIS projects.

- Consultants help to create/transfer know-how of accounting and the accounting system.
- Consultants help to create/transfer hands-on knowledge of accounting and the accounting system.
- Consultants help employees in SMEs to improvise using the accounting system.
- Consultants help employees in SMEs to develop trust in the consultant.
- Consultants help employees in SMEs to be enthusiastic with using the accounting system.

Proposition two:

Consultants help to create routine knowledge assets in SMEs during the implementation of AIS projects.

- Consultants help establish routines (formal/informal) surrounding the use of the accounting system.

Proposition three:

Consultants help to create systemic knowledge assets in SMEs during the implementation of AIS projects.

- Consultants facilitate the use of the accounting system database.

It was found during Phase-two of data collection that consultants affect IS competencies or abilities of SMEs. It was discovered that the impact of the consultant could compensate for a lack of abilities and enhance that ability where it exists.

The following four propositions relate to IS competencies in SMEs and are derived based on the results of the Phase-two interviews.

Proposition four:

Consultants will enhance/compensate for the strategy and vision competence in SMEs during the implementation of accounting IS projects.

- Consultants help SMEs with business and IS strategic thinking related to the implementation and use of accounting systems.

Proposition five:

Consultants will enhance/compensate for the sourcing and alignment competence in SMEs during the implementation of accounting IS projects.

- Consultants help SMEs with accessing IS knowledge.
- Consultants help SMEs to establish a software sourcing strategy for accounting IS.
- Consultants help SMEs to establish the infrastructure requirements for accounting IS.

Proposition six:

Consultants will enhance/compensate for the systems and infrastructure competence in SMEs during the implementation of AIS projects.

- Consultants help SMEs with the supply of accounting systems.

Proposition Seven:

Consultants will enhance/compensate for the IT management competence in SMEs during the implementation of AIS projects.

- Consultants help SMEs with the implementation and integration of accounting systems.
- Consultants help SMEs with using accounting systems.
- Consultants help SMEs exploit accounting systems by maximising the benefits of the implemented system.

8.3 The Edgehill Project

It was determined that the best or most ideal way to confirm and test the findings of the previous data collection stages of this research was to focus on the IS implementation process in a live real-world setting. In order to accomplish this, one case rather than multiple cases was desirable. To study the implementation process in detail required a longitudinal study design. The SME used in this phase of data collection satisfied the definition of an SME and was in the process of implementing an accounting system with the aid of a consultant. The SME was recruited, opportunistically through the consultant. The consultants were contacted and asked to participate if they were involved in an upcoming project. The consulting company, Vision Consulting, agreed and arranged for Edgehill Care to be part of the study.

Data collection occurred at the start of the project, continued during the execution of the project and after the project was completed. Interviews were conducted with the consultant, the office administrator who was responsible for using the software and the Managing Director of the SME who was also responsible for the project.

	Before (Start of the project)	During	After (3 months after start of project)
Consultant	Interview focussed on the project, goals, expectations and knowledge transfer	Observation of training, interactions, communications and configurations	Interview focussed on the project, goal, expectations and knowledge transfer
Administrator of SME	Interview focussed on the project, goals, expectations knowledge assets and IS Competencies	Observation of training, interactions, communications and configurations	Interview focussed on the project, goals, expectations knowledge assets and IS Competencies
Managing Director of SME	Interview focussed on the project, goals, expectations knowledge assets and IS Competencies	Observation of training, interactions and communications	Interview focussed on the project, goals, expectations knowledge assets and IS Competencies

Table 8.1: Summary of data collection procedure followed in Phase-three

8.3.1 Edgehill Care

Edgehill Care was a home-care company based in Christchurch, New Zealand providing accommodation for young people with disabilities. The organisation was founded in 2008 under the leadership of Managing Director, Vanessa Cobbs; Vanessa was a Registered Nurse with experience in caring for the disabled. As Managing Director, Vanessa's roles ranged from strategic to operational as she oversaw the day-to-day activities of the business. In addition to her role as Managing Director (and owner) of Edgehill Care, Vanessa provided registered nursing assessment and leadership. The Board of Directors of Edgehill Care provided support for Vanessa in her role as Managing Director. There were four board members (including Vanessa) with diverse skills in business, nursing, disability services, management, finance, quality improvement, and consumer advocacy.

Edgehill Care had 25 employees and houses up to 50 residents. Staff included Registered Nurses and Care Assistants who carryout regular residential care.

Rehabilitation therapists and personal coaches were also contracted to assist with the care and rehabilitation of residents. Edgehill Care prided itself on its commitment to provide a home for young people with similar needs. The company's vision, which can be found on their website states:

> "To provide a home for life - a supportive home for young disabled people that facilitates independent living and meets their social, emotional, spiritual and physical needs."

From its inception in 2008, Edgehill Care used a small business accounting package (which for the purpose of this thesis will be called SBAP – not the real name of the software) as its accounting system. SBAP was implemented at the recommendation of a consulting firm, Vision Consulting.

One of the main goals of the initial SBAP project was for Vanessa to use the system on a regular basis to carryout accounting related tasks. However, due to what was termed a "*technical glitch*" SBAP did not work the way it was supposed to and Vision Consulting became responsible for the accounting role and function at Edgehill Care.

Jane, who was employed by Vision Consulting, is the Office Administrator at Edgehill Care. Jane assumed the part-time role of Administrator shortly after Edgehill Care commenced operations. Initially, Edgehill Care intended to employ a full-time Office Administrator, but that did not materialise as planned and Jane filled the role on an "*as-needed basis*". This is not unusual for SMEs as was learned in the earlier phases of the study. Consulting companies provided staff to SMEs in need of personnel with accounting administrative skills.

Jane's duties/tasks involved:

1. Doing the company's accounts, that is, keeping up with the daily accounting tasks.
2. Looking after the web pages, changing and updating information.
3. Invoicing (end of the month invoices and weekly invoices). Also receiving creditors invoicing, and processing them.
4. Managing the document management system. At the beginning of every month looking at the document management system and identifying which documents need to be reviewed.

8.3.2 Vision Consulting

Vision Consulting, originally started in 2006 by John; and a year later, his wife, Maria joined the company. The company's full time staff comprised of John and Maria. In addition, the firm employed two contractors: Jane on an *ad hoc* basis, who generally worked with Edgehill Care; and Sofia, a Human Resources (HR) specialist worked for Edgehill Care as well.

Vision Consulting specialised in providing accounting services to firms involved in healthcare (or on the periphery of healthcare). Maria's duties included managing the document-management systems and quality assurance. John performed accounting and business management duties including systems and processes. Jane's duties included administration and she supported John with tax issues and in maintaining clients' accounting software. Sofia handled Human Resource (HR) functions. The company's primary focus was on small businesses but it also had larger clients. Vision Consulting's smallest client had 4 employees. The next range of clients is similar to Edgehill Care with 24/25 employees. The company currently had approximately 10 clients and was also a registered tax agent with the New Zealand Inland Revenue Department (IRD). As

such the company did work on behalf of the IRD, assisting individuals and companies with their tax returns.

Vision Consulting provided solutions in:

1. Business strategy & operations
2. Quality management & assurance
3. Due diligence & investigative projects
4. Financial management
5. Business growth management
6. Operations excellence (e.g. cost reduction, lean)
7. Small business strategy
8. Tax and accounting

John worked as a management accountant after graduating with his MBA and decided to branch out from accounting and learn more about business management. In terms of accounting packages John was familiar with SBAP, and more recently accounting for small businesses (ASB – not the actual name of the software). John had experience as an accountant and had a Bachelor's degree in Commerce. While taking his MBA, John chose to major in small business and management leadership; he stated, "*It's really an area that I enjoy a lot of*." He further stated as an accountant, he had been exposed to a lot of IS/IT, although he did not have formal IS/IT training. John noted that his knowledge of computer networking was, in his words, "*Enough to get me into trouble.*" For some of his clients, including Edgehill Care, John said he set-up the IS infrastructure, noting that he knew his limits, and handed them over to an expert IT company to take care of hardware and infrastructure. John trained

clients to improve their skills in accounting and also supplied accounting software. John trained Jane in accounting and assisted a former client with ISO9000, and training for the ISO9000 project.

Since initially working with Edgehill Care to implement MYOB, Vision Consulting and Edgehill Care developed an on-going relationship. John noted that,

> *"It's something I have tried to do with Vision Consulting, is be a partner, to get things done instead of just a really clear distinction between us and them. Hence it's a very blurred distinction I suppose. When I started working at Edgehill Care, and I think this is probably the turning point as a consultant, when you start saying we, as in we Edgehill Care, as if I am part of the team and Jane and me. We as Edgehill Care but we as Vision Consulting providing a lot of services."*

8.3.3 The Implementation Project

8.3.3.1 Reasons For Project

There were several reasons why Edgehill Care decided to embark on the project to implement ASB, replacing SBAP. The catalyst for the project was the change of Government Sales Tax (GST) from 12.5 percent to 15.0 percent. The GST rate change meant that Edgehill Care had to update the system to a new version. The situation provided an opportunity for John and Edgehill Care to review the options and make a decision about a new system.

In addition to the issues surrounding the GST rate change there were other problems. John and Jane were growing increasingly frustrated with SBAP. John's frustrations related to the fact that the version of SBAP being used did not have an automatic backup feature. Not having up-to-date backups, John noted, was a major business risk. Jane's frustration was related to the integrity of data at times and Vanessa's concerns were related to the financial costs of continuing to use SBAP. There was also frustration with the effort involved in producing a report in SBAP. Producing a report not only involved generating it in the system but then tailoring it to make sure it was in a format that was clear and easily understood by Vanessa. Added to this was the fact that the version of SBAP in use was not the networked version and was installed on Jane's computer, which presented a risk to Edgehill Care.

Further to the issues mentioned above John noted that one of the main goals of the initial SBAP project was for Vanessa to use the system on a regular basis to carryout accounting related tasks. As noted before there were problems and SBAP did not work quite the way Vision Consulting had intended. As a result Vision Consulting took on the responsibility of managing the accounting role at Edgehill Care. John also revealed that there was an issue with the current procedures surrounding the use of SBAP. Following the end of each month it took Jane a few days to *'close the month off'*. Jane generated the report; John "*sanitised*" it before giving it to Vanessa around the 20th of the month. *"So it's already old information; it's three weeks old,"* related John. He then concluded, *"I think we have out-grown some of SBAP."* It was envisaged that the project would address the above issues.

8.3.3.2 Project Initiation

At the start of the project, John searched the market and examined available accounting systems. After reviewing several options, from the point of view of cost and the user's perspective, John determined ASB would be best suited for Edgehill Care and would do a better job than SBAP.

Although the evaluation process was not *"overly formal,"* given the size of Edgehill Care, John and Jane reviewed different criteria to decide on the right system. The various attributes of each system were evaluated, and Jane worked simultaneously with the trial version of ASB. Based on her experience with a previous client, they decided ASB was a good option. John presented this information to the board of Edgehill Care explaining the various software options and suggested that Edgehill Care consider switching to ASB. During the evaluation process, John compiled a list of general requirements that the software needed to meet in order to be considered suitable for use at Edgehill Care.

These requirements were described as follows:

I. The accounting software had to be easily managed by multiple users (for staff backup/sickness/holidays, as well as anytime reporting)
II. The accounting software had to support tailored invoicing, automatic processing, and interface with banking.
III. The software had to be simple to use and provide easy access to reporting.
IV. The software needed to provide online access, offsite backup and automatic upgrades.
V. The software needed to have a transparent pricing structure, competitive pricing with high perceived *'value for money'*.

VI. The software needed to be reliable.

VII. The software needed to provide integration with iPayroll (the payroll system used by Edgehill Care).

VIII. Applicable to Windows and Mac operating systems.

IX. Provide access to banking feeds, data migration and integrate with ASB (if applicable).

John introduced Vanessa to the new software, asked her to review it and suggested reasons in support of ASB:

1. John suggested that having the new software would allow them (Vanessa, Jane and John) to use the system at the same time, which was not possible with the SBAP setup.
2. Switching to ASB would give Vanessa the opportunity to become familiar with the system (and accounts), since she does not use SBAP.
3. SBAP was not meeting the needs of Edgehill Care and had "*slowed down a bit.*"
4. Switching to ASB would support future growth of Edgehill Care.

Vanessa and the board agreed that implementing ASB was a good idea and gave the project the go-ahead.

8.3.3.3 Goals of ASB Project

There are several goals associated with the implementation of ASB. John revealed:

> *"The project is intended to put responsibility on the person who wants the information, that is Vanessa. Even if not completely, partly, so if Vanessa has a question, she knows how she can get the answer."*

A goal of the project was to show Vanessa that accounting and using accounting software was not difficult. John stated:

> *"I think it will help sell accounting some degree too. It doesn't have to be complicated; it's easy. It should be easy for them to learn accounting so they can run it… Vanessa anyway."*

Another objective was to *"Increase Vanessa's knowledge about accounting/AIS"* as well as to assist her in utilising the software to become more aware of the financial aspects of accounting and GST. Additionally, implementing ASB was intended to make the entire accounting process easier for Vanessa.

The project was estimated to last approximately 4 months. The timeframe and persons responsible for the major tasks involved in the project are presented in the table below:

Activity	Responsibility	Dates
Sign up and setup (with initial free trial period)	John	21 February 2011
Synchronise Chart of Accounts and reconcile with SBAP records as at 31/01/11	John & Jane	22 - 28 February 2011
Introduction, review scope and confirm responsibilities	John, Jane & Vanessa	22 - 28 February 2011
Commence data entry & reporting in ASB	Jane	1 March 2011
Run ASB and SBAP in parallel	Jane & John	1 - 31 March 2011
ASB introduction & training for Jane & Vanessa - provided by John	John	1 - 11 March 2011
ASB discontinued	Jane & John	31 March 2011
Historical data migrated from SBAP to ASB, then reconciled	Jane & John	1/05/2011
Progress review	John, Jane & Vanessa	Late March 2011 Mid May 2011 (Before and after Jason's leave)
Final evaluation & review	John, Jane & Vanessa	23 May 2011

Table 8.2: Project schedule

John, the project manager was responsible for the overall project as he was the accountant and business advisor. Vanessa in her limited role was involved when needed. Jane and John carried out several tasks during the implementation of the new accounting software. The project began with the parallel running of SBAP and ASB

during March 2011, overseen by Jane. This gave them the opportunity to observe in detail the differences between the two systems. In late March 2011 they took a closer look at ASB; *"getting a feel for it, playing with it and seeing what the various options do."*

John did the basic set up of ASB tailoring the chart of accounts to fit Edgehill Care and ensuring that it was accurate and reflected previous years. John also tailored some of the asset and liability accounts. He ensured that the opening account balances were correct and also set up default reminders within the system. He also verified the reporting to ensure that it was the same as SBAP. John introduced Vanessa to some of the concepts and the tasks that she could do using the system. Jane was responsible for the detail setup of ASB and the required data entry. John noted, *"I take more of a guidance role and a lead role with Jane…"* Jane worked to set up the chart of accounts and helped ensure that it reflected the SBAP chart of accounts. She set up an invoice template, tailored it to Edgehill Care and checked the reporting capabilities of ASB. The invoices were used from the 1st of April 2011. Jane and John worked jointly to determine the best way to integrate iPayrole with ASB and how to reconcile the bank account. Throughout the course of the implementation they communicated and interacted on a regular basis using email and the telephone to discuss various aspects of the project.

When John was on holiday during April and part of May 2011, Jane had about 7 weeks on her own to *"get ASB going"*. Edgehill Care officially stopped using SBAP on the 31st March 2011. Jane continued the setup and put together the invoice template. When John returned in early May 2011 he and Jane reviewed the status of the project to ensure the software was operating as intended.

8.3.3.4 Training

After the software was setup and functioning, the final stage of the project was training. John conducted two types of training: training aimed at Jane and training aimed at Vanessa. Jane was trained to assist Vanessa in ASB does and how it works. John noted, *"I think she is good at self learning, to teach herself and she is really getting up to speed with it now."* The training was also intended to make sure Jane was able to adequately carry out the tasks required of her as the Administrator at Edgehill Care.

The training designed for Vanessa focused on teaching her how to run the Profit and Loss report and the Balance Sheet report. The training was intended to help Vanessa know her way around these reports to see *"what's good and what's not good"*. After the training, Vanessa was expected to generate and review reports on her own. The training focused on building Vanessa's knowledge of accounting principles. John noted that prior to the training, Vanessa mentioned that she lacked knowledge of GST and wanted to know more about it. John explained that some aspects still needed to be shown to Vanessa. For example, the GST report could be generated in ASB. Prior to ASB being installed, the GST process involved Jane explaining to Vanessa what payments were to be made to the Inland Revenue Department (IRD) and Vanessa complying. With the implementation of ASB, Vanessa can understand why a particular amount has to be paid to the IRD.

After ASB was installed, the training began with John using one-on-one sessions supplemented by email and telephone conversations. He pointed out that by using the reports, (for the next few months), he would explain to Vanessa how each report was generated. The first training session which was an introduction to ASB, allowed Vanessa to see the system and lasted 40 minutes. The training covered:

1. How to log in
2. An overview of what information was available (on the home screen)
3. How to drill down into that information (See what is happening)
4. Reports - the types of reports that were setup and those of interest to Vanessa

Vanessa was enthusiastic about the simplicity and visual aspects of the system. She was amazed by how easy it was to access credit card and bank statements. Vanessa remarked: "*It is very easy…I can do it myself…Very visual…"* and *"Very good."* After the training Vanessa was keen to use ASB.

8.4 Results

This phase of data collection was designed to test the model developed in Phase 2 by focusing on the eight propositions introduced at the start of Chapter 8. To test the propositions, the study first examined the company's IS knowledge assets and IS competencies at the start of the project, before the accounting system was installed. The results are presented in this section.

8.4.1 Knowledge Assets (Before Implementation)

IS knowledge assets at Edgehill Care were considered by examining the individual knowledge assets of Vanessa the owner/manager of Edgehill Care. This was due to the flat organizational structure of the company. Vanessa was the person responsible for the administrative tasks in the company. All other staff members focussed on the care of the residents.

Experiential knowledge assets are considered first. These consist of know-how and experience. The level of accounting experience and know-how were very low at

Edgehill Care. This was because Vanessa lacked accounting experience and know-how. Vanessa had minimal knowledge of accounting and accounting principles. Vanessa noted that she, *"Basically knows how to pay the bills."* Vanessa did not use SBAP, the system that was in use before the implementation project. This was partly because the installation of SBAP was on Jane's computer but also because Jane and John provided Vanessa with the information she needed from the accounting system.

Experiential knowledge assets also involve enthusiasm (see Chou and He, 2005). Vanessa noted that she was happy about the project, noting, *"... I am quite happy and it sounds good."* At the same time, however, Vanessa was also happy with the arrangement of the accounting function before the project, and preferred that it remained that way. Vanessa noted, *"I am curious to see how it's going to work and it may be that it will simplify things for me, which would be great."* Jane on the other hand felt that Vanessa was a bit apprehensive about the new system. Jane pointed out,

> *"With the implementation of the new system there was to be a shift away from knowing nothing and just assuming that it was all going to be okay."*

Jane noted however that Vanessa thought the new system was a good idea.

Routine knowledge assets are the second area to be considered. Routine knowledge assets consist of routines related to the use of the accounting system/function. Jane had established procedures related to the accounting function. The established procedures mainly deal with the following:

i. Vanessa forwarded accounting information to Jane. Jane described the procedures this way: *"So this point in the month you need to be doing this, this point I will be doing this and then you will do that."*

ii. Following up on creditors who have not paid. The creditors routine/process is as follows: Vanessa gathers all the invoices and pays them. Jane puts the invoices into the system; Vanessa approves the invoices, and also verifies things. It is expected that by the 17th of the month Vanessa will approve the invoices.

iii. Gathering information needed to do the accounts, including following up on credit card bills and various transactions.

Vanessa did not use the system and her role in the accounting function/processes involved these routines:

1. Paying the bills.
2. Maintaining records of business activities including monthly spending.
3. Dealing with anything extra.

Systemic knowledge assets are the final area to be considered. Since SBAP is installed on Jane's computer and she worked from home, documentation was not held (or used) by Vanessa. It was Jane's responsibility to generate the reports. John *"Sanitises a couple of things,"* and, *"condenses a couple of the numbers"* for Vanessa to see in a monthly report. The main reports used were:

1. GST return reports generated every couple of months.
2. The profit and loss reports, generated monthly.
3. The balance sheet reports on a monthly basis.
4. The creditors and debtors' reports.

John further compiles the profit and loss and balance sheet reports into a monthly KPR report that went to the board of Edgehill Care.

In general, John thought that the level of accounting knowledge of Edgehill Care was very low. He stated,

> *"I'd say it's very low the knowledge at the moment of accounting and I don't think given the kind of structure that it's gonna get very high. But I think at the same time we should see an improvement over the next couple of months."*

Vanessa was aware that knowledge was important for her to utilise the new system. However, since ASB was a new system, Edgehill Care did not possess any experience or know-how of the system.

In summary IS knowledge assets at Edgehill Care ware very low. This is summarised in Table 8.3 below.

Knowledge Assets	**Rating**	**Supporting Case Evidence**
Experiential Knowledge	Not Present	There is a lack of know-how and hands-on experience with accounting and the accounting software (SBAP). Vanessa did not use SBAP.
Routine Knowledge	Not Present	Although routines were in place there did not lead to growth of knowledge on accounting or the accounting software (SBAP) because the routines did not involve the use of SBAP.
Systemic Knowledge	Not Present	Vanessa had access to systemic knowledge in the form of reports, but these reports were generated and provided by Vision Consulting. Vanessa did not know how to generate reports and further did not use SBAP.

Table 8.3: IS knowledge assets at Edgehill Care before ASB implementation

8.4.2 Knowledge Assets (After Implementation)

Knowledge assets were examined after the accounting system was installed and the project to implement the software was considered completed (three months after the start of the project.) See Table 8.4.

Experiential knowledge assets, as noted before, consist of know-how and experience. Since the project was not meant to address accounting know-how and experience directly, these knowledge assets were unchanged even after the system is implemented. However, know-how relating to ASB had increased since the start of the project. Initially, Vanessa had no knowledge or experience with ASB, but since the installation of ASB Vanessa stated that she has utilised the system two or three times a week.

She used the system to review the company's balances and expenditure (to see what the company was spending or what costs it was incurring). She also used ASB to see the available balance on the company's credit card. This was possible since ASB had an option to display bank balances of the company's accounts. Previously, Vanessa would call John (Vision Consulting) to obtain this information. It may be concluded that after the project Vanessa utilised the system regularly and gained experience with the software. This represented a change from the start of the project where she had no knowledge of the system and did not even use the previous system.

Experiential knowledge also involves enthusiasm (Chou and He, 2005). Vanessa was enthusiastic about using ASB. This indicated a change from the situation before the implementation. As Jane pointed out there was some apprehension about the changes the implementation of ASB would cause the organisation. Despite indicating her

happiness with implementing ASB Vanessa was not keen about changing the way the accounting functions were operated at Edgehill Care. However, after the implementation there was apparent happiness and enthusiasm about the new system and the information that Vanessa was able to obtain. This has '*empowered*' Vanessa who was able to make decisions faster and not rely on Vision Consulting for such information.

Vanessa was learning ASB and was still in the process of gaining hands-on experience from the system. In a word, Vanessa found the system "*easy*". *"Using it is very easy…"* She was still learning ASB and confessed that she was spending time searching the software for how to do things. This represented a change from the situation before ASB was installed where Vanessa had no hands-on experience with the system. In addition, the ability to improvise is considered an experiential knowledge asset (Chou and He, 2005). Vanessa noted after using the system she was able to *"improvise a bit."*

As far as routine knowledge assets go Jane had written up new procedures relating to the use of ASB. The routines and procedures in place before the implementation were adapted or updated to fit the way the new system worked. The procedures detailed what each person did; in the event that someone was not available anyone can take over using the procedures as a guide. The procedures stated what needed to be done at what time, mainly on a monthly basis (invoicing, creditors, GST). Routine knowledge asset also involve knowledge/ability to explore. Vanessa stated that she was not making any changes to the information in ASB but she was reviewing the information on the system; and was able to explore on her own, in hopes of discovering new things about it.

Systemic knowledge assets look at knowledge that is contained in documents, like reports or manuals. Prior to the implementation of ASB Vanessa relied on Vision Consulting to provide her with reports. Although this procedure had not changed Vanessa was able to examine profit and lost reports that she generated in ASB. Following the completion of the project at Edgehill Care, Vanessa was able to generate reports on her own and therefore had access to systemic knowledge.

Knowledge Asset	**Rating**	**Case Evidence**
Experiential Knowledge	Present	Vanessa is now able to use the system. She has gained knowhow of the system and is gaining experience with using the system. As the case shows she is able to look at bank balances
Routine Knowledge	Present	The routines in place at Edgehill Care are the same as before the implementation. These routines have minimal involvement from Vanessa. However Vanessa indicated that she is now able to explore the system
Systemic Knowledge	Present	Vanessa is able to generate reports as evidenced by her producing a profit and lost report using ASB

Table 8.4: IS knowledge assets at Edgehill Care after ASB implementation

8.4.3 IS Competencies (Before Implementation)

Following the same approach, the existence (or state) of IS competencies are examined before the ASB software was installed. The results are presented below.

The first competency group to be considered is strategy and vision. This group deals particularly with the organisation's ability to undertake business and IS strategic

thinking. The organisation's ability to define the potential and the implications of implementing accounting systems (Cragg et al., 2011) include the knowledge of how accounting software can be of value to the company (Eikebrokk and Olsen, 2007). The data collected considered factors like innovation, which focussed at business opportunities arising from implementing ASB. Innovation was not applicable in the Edgehill Care case. This was because the project was primarily designed to replace an existing package and empower Vanessa, the managing director, to utilise the accounting system.

John (Vision Consulting) established the business case for the project. The case shows that there were some issues in utilising SBAP, which caused some frustration for Edgehill Care (Vanessa) and Vision Consulting. A change of rate in the GST meant that SBAP needed to be updated. In light of this, John set about establishing the business case for a new software system. This suggests that the competence ability to develop a business case and investment criteria were not applicable to Edgehill Care. John noted that when the GST rate-change occurred, he and Jane discussed the options, which led to the process of evaluating various alternatives to SBAP.

> *"It wasn't overly formal given the size of Edgehill Care but enough was there and I looked at a few different criteria to see this one is good, this one is not so good."*

After a couple of months of evaluating the options, with Jane *"having a go at the trial version of ASB,"* coupled with her experience with a previous client, they decided that, *"Okay, ASB looks good. This is the price, this is what it offers."* John presented the options, the pros and the cons and recommendations to Edgehill Care's board. The decision was made by the board to go with Vision Consulting's recommendation.

Vanessa noted that specialised activities like determining a business case were left up to John. *"Like John has come with the suggestion that this could be a good thing to look at (ASB). And basically if he thinks it's a good thing I'd just go with it."* Vanessa further explained,

> *"If I was doing a lot more of the accounting, if I was doing a lot more with MYOB or whatever and I finally got my head around... I might challenge a few things because it's a whole lot of new learning but I am not doing it so you leave it."*

The second competency group relates to sourcing and alignment; that is, the ability of the organisation to define the IS strategy (Cragg et al., 2011). In accessing the ability to define the IS strategy, the following were considered:

i. The software sourcing strategies of the organisation
ii. The IS acquisition processes
iii. Technology infrastructure requirements, particularly the ability of the organisation to define architecture and software needed for the implementation of AIS.

Vision Consulting managed all aspects of this group of competencies. In terms of the software sourcing strategy Edgehill Care relied on Vision Consulting. John evaluated the various systems and recommended that Edgehill Care implement ASB. Edgehill Care (in particular Vanessa) was not capable of doing this and Vanessa indicated that for specialised services she relied on John. This showed that the IS acquisition process and infrastructure requirement were left to the consulting company.

The third competency group relates to systems and infrastructure. This group focuses on the competence to supply accounting IS (Cragg et al., 2011). Managing IS supplier relationships is an important part of this competency. Edgehill Care and Vision Consulting had a close on-going relationship. Vision Consulting provided advice and guidance to Edgehill Care and its board. In addition, Jane of Vision Consulting handled the administration of the accounting functions.

Vanessa and Vision Consulting (Jane and John) described their relationship as very good. Despite the fact that Jane did not work on-site at Edgehill Care, there was still daily communication between Jane and Vanessa. This communication took the form of emails and telephone conversations. There was a two-way relationship, Vanessa engaged Vision Consulting to ensure she received what she wanted from the system (SBAP) was provided and John assisted Vanessa when needed. The payroll system was an example; John revealed,

> *"Vanessa doesn't probably realise all the reports you can do on payroll, pay slips and a report on staff that leave and all that sort of thing. So we sort of say to Vanessa okay give this to staff when they leave."*

Vanessa praised the relationship between Edgehill Care and Vision Consulting. The relationship was described as problem free, open, transparent and, *"Very good, very easy, very easy. And very, everything is just on tap."* Vanessa noted that she would not hesitate to contact John; she states, *"...Actually the running of the business (Vision Consulting) is very, very professional."* In addition, *"Maria and John both take a really big interest in how it's (Edgehill Care) going."*

Vision Consulting managed the accounting system (SBAP). There were key roles for Vanessa and Jane in this process. As the administrator of Edgehill Care, Jane managed the entire office, preparing invoices on a weekly and monthly basis, receiving creditors' invoices and processing them. She handled daily accounting tasks that included information provided by John. Jane's duties also included reviewing the document management system at the beginning of each month. The management and use of the accounting system described above may be seen as related to the competency information asset management and maintenance.

Vision Consulting was responsible for staff development at Edgehill Care, which involved taking care of staff training (Vanessa) and the development of skills. The consultant provided training on SBAP and ASB. John noted, "*I think at the same time there is probably a little bit more involvement that Edgehill Care could have in the top level, in reporting."*

Vanessa did not feel that her accounting skills are sufficient to manage the accounting function. To highlight an example she recounted a situation.

> *"John and Maria were away overseas last year and I had to ring Jane up. Step by step, because I did not have access to it, just to pay GST. She said you get onto the thing and you do this, this and this and she is talking me through it. It's the first time I had done GST, was last year. That was dead easy cause she did all the work and all I had to do was pay it into a bank account.*

The fourth competency group relates to the management of IT (IT management) which focuses on the organisation's ability to deliver accounting IS solutions and includes

implementing and integrating accounting IS. Vision Consulting handled all tasks relevant to the implementation of the SBAP system and they were again expected to deliver services related to the implementation and integration of ASB.

The ability to deliver AIS solutions is about the organisations ability to apply and use technology (the implemented software). At the start of the project Vanessa did not have the ability to use ASB because it was a new system that she had never seen or used. John, from Vision Consulting drove the implementation.

The IT management competency is also about the ability of the organisation to exploit the use of accounting software. At the start of the project Vanessa did not use SBAP but it is hoped that by implementing ASB she would be able to make use of the new system. John and Jane were competent in SBAP and used ASB on a small scale with previous clients so they knew the *"ins and outs"*. They thought that ASB was user friendly and Jane described Vanessa as having a bit of "*trepidation*" about using the new system. Jane felt that once Vanessa realised how easy using ASB would be, she would be fine with the system. Initially, Vanessa noted that she was not capable of using ASB and did not possess the skills to attempt to use it. Vanessa believed, however, that once she was shown how, she would be capable of utilising ASB.

IS Competence	Rating	Case Evidence
Strategy and Vision	Not Present	Vision consulting established the business case as well as present the benefits and implications of Edgehill Care implementing ASB
Sourcing and Alignment	Not Present	Edgehill Care relied on Vision Consulting for such ability. Vision Consulting sourced the software and were the ones knowledgeable about the infrastructure requirements
Process Integration	Not Present	Vision Consulting managed all the processes related to the accounting system.
Systems and Infrastructure	Not Present	The relationship between Edgehill Care and Vision Consulting was very good. There had developed an on-going relationship with weekly contact. Vision Consulting manages the accounting function and staff development
Management of IT	Not Present	Vanessa does not know how to use ASB at the start of the project. Also Vision Consulting was responsible for the implementation and integration of the software and for helping Edgehill Care to exploit the use of ASB

Table 8.5: IS competences at Edgehill Care before ASB implementation

8.4.4 IS Competencies (After Implementation)

The four competency groups (Strategy and Vision, Sourcing and alignment, Systems and Infrastructure and IT Management) were also examined after the completion of the project to implement ASB. The results are presented below.

Strategy and vision deals with the organisation's ability to define the potential and the implications of implementing AIS. The interviews considered areas such as the business opportunities arising from implementing ASB. There was no change to this competency group following the completion of the project. It was shown at the start of the project that John, (Vision Consulting) established the business case and reasons for the new systems. After the project, there was no indication that Vanessa (Edgehill Care) could carry out such tasks. The case evidence showed that Vanessa was willing to leave specialised tasks up to the consultant. However, Vanessa indicated after the project that she knew what needed to be done in an accounting system for Edgehill Care, which was impossible before the start of the project.

The second competency group, sourcing and alignment, focuses on the ability of the organisation to define the IS strategy. In accessing the ability to define the IS strategy (Cragg et al., 2011) the following were considered:

1. The software sourcing strategies of the organisation
2. The IS acquisition processes
3. Technology infrastructure requirements particularly the ability of the organisation to define architecture and software needed for the implementation of AIS.

Vision Consulting managed all the aspects of this group of competencies. John evaluated the various systems and recommended that Edgehill Care implement ASB, which Edgehill Care (Vanessa) was incapable of doing. After the completion of the project, there was no indication that Edgehill Care gained the ability to carryout any of the activities listed above and Vanessa was prepared to leave such specialised activities to the consultant.

The third competency group systems and infrastructure relates to the organisation's ability to manage the supply of AIS. This involves in particular managing IS supplier relationships. There was a close on-going relationship existing between Edgehill Care and Vision Consulting. This relationship remained unchanged throughout the entire project.

As noted previously, Vision Consulting managed the use of the accounting system at Edgehill Care. There were key roles for Vanessa, Jane and John as ASB improved the process and made it more efficient. Vanessa pointed out *"It is the efficiency of everyone's time."* This was seen from the case evidence since Vanessa no longer contacted Vision Consulting for assistance on matters such as the credit card balances.

Staff development continued to be the responsibility of Vision Consulting. The company handled staff training and development of skills at Edgehill Care; John conducted the training on ASB. The effects of staff development were seen in the skills and abilities that Vanessa developed. She never used SBAP but after the project was completed she used the new system and had an understanding of how the system worked, including some of the accounting functions. Therefore, using ASB gave her more information and a better understanding of accounting within the company.

The fourth competency, IT management, focuses on the organisation's ability to deliver AIS solutions. This involves the organisation's ability to implement and integrate the system in the organisation. Vision Consulting managed, as well as, executed the implementation and integration of ASB. After the completion of the project there was no indication that Edgehill Care could carry out such tasks in the future.

The ability to deliver AIS solutions is also about the organisations ability to apply and use technology (the implemented system). Before ASB was installed it was noted that Vanessa did not have the ability to use the software. After the completion of the project Vanessa believed that she had acquired enough skills to use the system, *"To do what I need to do at the moment"*. Vanessa had a positive attitude towards ASB and she was very happy with the software. Vanessa indicated, *"It's okay for what I need it for."* However, Vanessa noted that she did not do data entry and was still unable to do so even after the project was completed. Finally, John guided Vanessa through running reports during the initial training session. Vanessa, after the training, was capable of generating the built-in reports using ASB.–This represented a change in the situation since the start of the project. Prior to Implementation Vanessa did not know much about ASB or even possesed the ability to use the software.

8.4.5 Summary of Findings

Table 8.5 summarises IS knowledge assets in Edgehill Care before the project and after the after was completed. It is evident that consultants impact knowledge assets as an increase in these assets (experiential, routine and systemic) occurred after the system was implemented.

	Factors	Before project	After project	Change
Experiential	Hands-on Experience (ASB)	Low	Medium	Positive
	Experience in accounting	Low	Low	No change
	Improvisation with ASB	Low	Medium	Positive
	Trust in consultant	High	High	No change
	Enthusiasm	Low	High	Positive
Routine	Importance of knowledge to use ASB	High	High	No change
	Gain new knowledge using ASB	Low	Medium	Positive
	Knowledge for day-to-day use of ASB	Low	High	Positive
Systemic	Easy access to ASB database	Low	High	Positive
	Access to ASB documentation	Low	Low	No change

Table 8.6: Summary of IS knowledge assets in Edgehill Care before and after the project

In Table 8.6 IS competencies in Edgehill Care are summarised before and after the implementation project. The summary shows that there were not many changes to IS competencies in Edgehill Care following the implementation of ASB. This is because was the consultant's impact on IS competences was to compensate for the competences lacking at Edgehill Care. Two competences changed after the project was completed: competency in process integration and IT management (Summarised in Table 8.7). In other competencies, the consultant compensated for the lack of ability so there was no change at the end of the project.

Competence	Factors	Before Project	After Project	Change
Strategy & Vision	Ability to engage in business and IS strategic thinking	Low	Low	No change
Sourcing and Alignment	Ability to gain access to relevant IS knowledge	Low	Low	No change
	Ability to establish a software sourcing strategy	Low	Low	No change
	Ability to determine infrastructure requirements	Low	Low	No change
Systems and Infrastructure	Ability to manage the supply of ASB	Low	Low	No change
IT Management	Ability to implement and integrate ASB	Low	Low	No change
	Ability to use ASB	Low	High	Positive
	Ability to exploit the use of ASB by maximising the benefits of IS	Low	Medium	Positive

Table 8.7: Summary of IS competencies in Edgehill Care before and after the project

8.4.6 Knowledge Creation and Transfer

Having observed the various differences in IS knowledge assets and IS competencies before and after the completion of the project, this section attempts to provide explanations and give reasons for the observed differences. This is achieved by examining knowledge creation and knowledge transfer processes within the Edgehill Care. The SECI model (Nonaka et al., 2000) and Nonaka and Toyama, 2005) explains knowledge creation within an organisation. Applying the ideas of knowledge creation to the consultant-client relationship reveals how consultants impact knowledge creation in SMEs. There are four modes of knowledge creation in the SECI model, socialisation, externalisation, combination and internalisation. These modes are discussed below.

8.4.6.1 Socialisation

Socialisation involves sharing tacit knowledge through face-to-face communication or shared experience. The most common example of socialisation is an apprenticeship. In the socialisation process new knowledge is created through interaction, observation, discussion, analysis and time spent together or living in same environment.

The relationship between Edgehill Care and Vision Consulting was such that John spent considerable time with Vanessa (face-to-face), interacting and discussing operational, business and accounting issues. Vanessa pointed out during the interviews that she did not hesitate to contact John. Vanessa noted that she was always going to need Vision Consulting; emphasising that she could not run the business without their assistance. Throughout the project John kept Vanessa informed of the progress to ensure that she was ready to be shown the basics of how to use the system and how to produce reports.

In the socialisation process an organisation gains new knowledge from outside its boundary as in the case of Vanessa interacting with John on a regular basis. New knowledge is gained from face-to-face contact rather than from reading books or manuals. It is through these interactions, prior to the project, and during the project that led Vanessa to know about ASB and the potential benefits and implications of using the system. It is noted, however, that the administrator at Edgehill Care was contracted by Vision Consulting. If the administrator had been employed by Edgehill Care and based on-site, or had Vanessa been using the system the socialisation process might have led to more noticeable knowledge assets.

8.4.6.2 Externalisation

Externalisation is the process of articulating tacit knowledge into explicit knowledge within the organisation. Converting tacit knowledge to explicit allows it to be shared by others and it becomes the basis of new knowledge. Examining the project at Edgehill Care, it is noted that the consultant externalises tacit knowledge in order to share it with the client. In this way Vision Consulting was able to share knowledge with Vanessa.

Traditionally this process helps in creating new knowledge, as tacit knowledge becomes collective group knowledge in the organisation. Knowledge is crystallised by this process. In the case of consultants, these experts use the knowledge and experience they have to improve or solve accounting related issues. This is exemplified in the Edgehill Care case where the processes surrounding the accounting function were developed and organised by Jane from Vision Consulting. Jane developed the procedures/processes and routines surrounding the use of ASB in the organisation. In effect, the tacit knowledge of Jane and John wass made explicit in the operation of the accounting function at Edgehill Care.

8.4.6.3 Combination

In this process knowledge is converted from explicit knowledge to new explicit knowledge. The use of a database to create a business report is an example of the combination process. Here, explicit knowledge stored in the database is combined to create new explicit knowledge in the form of a report.

In reference to the Edgehill Care project, Vision Consulting produced the reports that the organisation used. In particular, John formatted or *'sanitised'* the reports to present to Edgehill Care's board. This process was in place before the implementation of ASB

and was set to continue even with the implementation. What was new was that Vanessa had been empowered and was able to generate reports from the system. In both situations the consultant was at the heart of the process; by generating reports and by teaching Vanessa how to do the same. The consultant facilitated the process of Edgehill Care converting explicit knowledge stored in the database to explicit knowledge in the form of reports.

8.4.6.4 Internalisation

This is the process of converting explicit knowledge into tacit knowledge. Individuals convert explicit knowledge that is shared throughout an organisation into tacit knowledge (training of employees). By practicing, listening and reading the training manuals and documents employees internalise the explicit and create new tacit knowledge.

In the case of Edgehill Care, John provided training to Vanessa on how to utilise ASB. It was in this session that Vanessa learned how to use ASB. The training session took Vanessa through logging onto the system, navigating and exploring information as well as how to generate reports. In addition, there were several meetings and discussions between John and Vanessa over the duration of the project. Vanessa and John also communicated via email and by telephone. By internalising the knowledge gained, Vanessa was able to explore and utilise the system in a way unique to her by creating new tacit knowledge. Evidence of this was seen when Vanessa revealed that she had been exploring the system and learning new things about ASB and accounting. Vanessa noted that she also gained knowledge of accounting, *"I suppose a little bit more knowledge on the accounting side of things."* And again she noted, *"I have got a bit more knowledge on the accounting, the financial side."* Utilising ASB had an impact on

the decision making process at Edgehill Care. Vanessa was able to make decisions *"on the spot"*. This, Vanessa noted, gave her a bit more *"autonomy"* and led to improvements in time, making things more *"efficient"*.

8.4.7 Communication Channels

It was previously noted that knowledge transfer is dependent on communication (Dawson, 2005). It was also previously noted that communication and discourse systems, and knowledge repository systems enable the conversion or transfer of knowledge (Massey and Montoya-Wiess, 2006).

Using the Edgehill Care case, the systems that enable knowledge transfer are identified and discussed. Communication and discourse systems include face-to-face interaction and technology-based options like telephone, video-conferencing, instant messenger, e-mail, groupware, and voice-mail (Massey and Montoya-Wiess, 2006). Knowledge repository systems provide access to knowledge artefacts including structured data, diagrams, text-based documents, models, and images (Massey and Montoya-Wiess, 2006). Knowledge artefacts make structured, explicit knowledge available to an organisation and its members via electronic systems such as data warehouses, best-practice databases, Intranets or Internets, and portals (Massey and Montoya-Wiess, 2006).

Communication and discourse systems identified during the execution of the project were:

i. Face-to-face interactions: Throughout the course of the project John and Vanessa had regular face-to-face encounters. There were formal meetings where they met to discuss business and accounting related issues. There

were meetings and informal discussions to discuss the project; John would update Vanessa on the progress and status of the project. The relationship between John and Vanessa was such that they met on a regular basis to discuss business, operational and accounting matters. The other face-to-face encounters relating directly to the implementation were the training sessions. These were organised as an informal one-on-one session where John took Vanessa through using system. The approach was hands-on as Vanessa navigated her way through the system with John providing guidance.

ii. Email: This was commonly used throughout the project to share information easily and provide updates on the progress and state of the project. Since Vanessa, John and Jane were all based at different locations they frequently communicated by email. For example, documents relating to the project, which included the schedule of activities and the scope document were communicated via email. Admittedly, there was much more email between Jane and John as they worked to configure ASB.

iii. Telephone: This was also a common tool used throughout the project, since Vanessa, Jane and John were all based at different locations there were frequent telephones conversations among them. Prior to the project, Vanessa confessed that she often called John to ask for assistance or for information, (e.g. The company's credit card balance).

The main knowledge repository system at Edgehill Care was the accounting database. The knowledge stored in this repository was of value to the company and was accessible by generating various reports. Prior to the project, Vanessa did not have access to running reports nor was she capable of doing so. However, after the

implementation, Vanessa was aware of how to run reports and generate a profit and loss report.

8.5 Analysis of Results

This phase of data collection is designed to answer the main research question of this study by addressing the seven propositions presented at the start of Chapter 8. Propositions 1-3, relate to IS knowledge assets and Propositions 4-7, relate to IS competencies.

8.5.1 Knowledge Assets

From Phase two it was suggested that consultants help create IS knowledge assets in SMEs. Three types of knowledge assets were identified: experiential, routine and systemic. Using the case of ASB (an accounting system) being implemented by Edgehill Care, the propositions regarding knowledge assets were investigated. The findings are presented in Figure 8.2.

Proposition One:

Consultants help to create/transfer experiential knowledge assets to SMEs during the implementation of AIS projects.

- Consultants help to create/transfer know-how of accounting and the accounting system.
- Consultants help to create/transfer hands-on knowledge of accounting and the accounting system.
- Consultants help employees in SMEs to improvise using the accounting system.
- Consultants help employees in SMEs to develop trust in the consultant.

- Consultants help employees in SMEs to be enthusiastic with using the accounting system.

This proposition was confirmed for know-how of the accounting system, improvisation when using the accounting system and enthusiasm with using the accounting system. It was shown, considering the results before implementation and after implementation, that the consultant created/transferred 'know-how' of the accounting system to Edgehill Care. This was observed after the project was completed, Vanessa, the managing director was capable of using the new system. Before the project began, Vanessa had no idea how to use the system. However, through training and interacting with the consultant Vanessa learned how to use the system. The internalisation knowledge creation process underlies this because Vanessa gained her know-how from the training session which is explicit knowledge converted into implicit knowledge.

This case also indicated that Vanessa was enthusiastic about ASB mainly after the completion of the project. Despite the initial apprehension, which was related to the way the accounting function was handled, Vanessa was still enthusiastic about the new software. Her enthusiasm was fuelled by the ease in using the system and the immediate benefits she gained. The consultant contributed to this process by sharing with Vanessa, how the new system would benefit Edgehill Care before and during the project. The socialisation knowledge creation process underlies this. Through face-to-face interactions and discussions John was able to influence Vanessa's enthusiasm for ASB. The case also indicated that Vanessa learned how to improvise in some way when using ASB.

Although the interviews in Phase-two suggested consultants transfer hands-on knowledge, this was not supported by the Edgehill Care case. This is most likely due to the fact that Jane, the administrator and person most likely to share hands-on knowledge with Vanessa, worked off-site. Although the case shows that Vanessa trusted the consultant: this trust existed before the project and probably originated with their relationship from the previous implementation of SBAP.

Proposition two:

Consultants help to create routine knowledge assets in SMEs during the implementation of AIS projects.

- Consultants to help establish routines (formal/informal) surrounding the use of the accounting system.

Consultants help to create routine knowledge assets in SMEs during AIS implementation projects. This proposition is confirmed by the Edgehill Care case. Vision Consultants established routines and procedures in the organisation. The routines and procedures are designed specifically to suit the situation at Edgehill Care. The consultant, in this case converted tacit knowledge gained from years of experience into routine knowledge assets in the organisation. This relates to the externalisation knowledge creation process. Consequently, Vanessa gained knowledge using ASB. At the start of the project Vanessa did not know how to use ASB but after the project she was able to use the software. In addition, at the start of project Vanessa had no idea how to use ASB in her daily activities. However, after the project Vanessa gained knowledge to carry out day-to-day activities using ASB.

Proposition three:

Consultants help to create systemic knowledge assets in SMEs during the implementation of AIS projects.

- Consultants facilitate the use of the accounting system database.

Consultants help to create systemic knowledge assets in SMEs during AIS implementation projects. This proposition is confirmed by the Edgehill Care case. The consultant ensures that Vanessa was able to make use of the accounting database by being able to generate reports. This was achieved through the training session. It was during this session that Vanessa learned how to use the database to generate explicit knowledge in the form of reports. This relates to the combination knowledge creation process. The organisation creates explicit knowledge from explicit knowledge and the process was facilitated by the consultants who train/show employees in the organisation how to generate reports.

8.5.2 IS Competencies

The results of Phase two find that consultants impact on the four macro or grouped competencies. These four competencies are: Strategy and vision, IT Management, Sourcing and alignment, and Systems and Infrastructure. In Phase three, using the implementation of ASB at Edgehill Care, the propositions regarding IS competencies were investigated. The findings are presented in Figure 8.2.

Proposition four:

Consultants will enhance/compensate for the strategy and vision competence in SMEs during the implementation of accounting IS projects.

- Consultants help SMEs with business and IS strategic thinking related to the implementation and use of accounting systems.

At the start of the project Edgehill Care did not possess this ability. There was no change in this ability at Edgehill Care after the project was completed. The results of the case indicated that the consultant was the one who possessed this particular ability; Edgehill Care did not possess it. Consequently, it was the consultant who established the business case and reasons for implementing the new system. There was no evidence to suggest that Edgehill Case had developed this competence after the project. Therefore, the consultant did not enhance this ability in Edgehill Care. It may therefore be concluded that the Edgehill Care case supports the notion that consultants compensate for the strategy and vision competence in SMEs during AIS implementation projects rather than enhances the ability. Therefore, this proposition was confirmed by the Edgehill Care case for the notion that consultants will compensate for a lack of the strategy and vision competence in SMEs.

Proposition five:

Consultants will enhance/compensate for the sourcing and alignment competence in SMEs during the implementation of accounting IS projects.

- Consultants help SMEs with accessing IS knowledge.
- Consultants help SMEs to establish a software sourcing strategy for accounting IS.
- Consultants help SMEs to establish the infrastructure requirements for accounting IS.

There was no change in the state of this competence at Edgehill Care after the completion of the project. The results of the case show that Edgehill Care did not possess any of the abilities related to the sourcing and alignment. Consequently, the consultant provides Edgehill Care with these abilities. The consultant was responsible for sourcing the software, acquiring the software and certainly knows/understands the requirements of the software. At the start of the project Edgehill Care did not possess these abilities and after the project was completed there was no evidence to suggest that this had changed. The Edgehill Care case therefore shows that consultants compensate for the sourcing and alignment competency in SMEs, during AIS implementation projects. Therefore, this proposition was confirmed by the Edgehill Care case for consultants compensate for the lack of the sourcing and alignment competence.

Proposition six:

Consultants will enhance/compensate for the systems and infrastructure competence in SMEs during the implementation of AIS projects.

- Consultants help SMEs with the supply of accounting systems.

There was no change in this competence after the project is completed. The key focus of this competence is on the development of the relationship between the supplier (Vision Consulting) and Edgehill as well as staff development. Before the implementation project Edgehill Care and Vision Consulting had a close on-going relationship. This relationship has continued with the execution and conclusion of the project to implement ASB. It has been previously noted that Vision Consulting was responsible for the development of staff at Edgehill Care and after the project this situation remained the same. The Edgehill Care case supports the notion that consultants

compensate for the systems and infrastructure competence in SMEs during AIS implementation projects.

Proposition seven:

Consultants will enhance/compensate for the IT management competence in SMEs during the implementation of AIS projects.

- Consultants help SMEs with the implementation and integration of accounting systems.
- Consultants help SMEs with using accounting systems.
- Consultants help SMEs exploit accounting systems by maximising the benefits of the implemented system.

There was no change in the ability to implement and integrate ASB at Edgehill Care after the completion of the project. Edgehill Care did not possess this ability at the start of the project and there was no evidence to suggest that after the project that this had changed. The results of the case show that the consultant manages the implementation and integration of the system. Edgehill Care was not involved in this task. Therefore, this aspect of the IT management competence was not enhanced but was compensated for by the consultant. On the other hand there was a change in the ability to use the system. Vanessa learned how to use ASB after the completion of the project. It was the consultants, mainly through training, that assisted Vanessa with enhancing her ability to use the system. In this case the consultant enhances this aspect of the IT management competence. Additionally, there was some improvement in the ability to exploit the use of ASB by maximising the benefits of the system. Vanessa after the project made full use of the bank balances option in ASB, which empowered her to make decisions faster instead of relying on Vision Consulting. While the consultant helped to enhance the

ability to use the system and, to further exploit its use, the consultant compensates for the implementation and integration of the system. It is therefore fitting to conclude that consultants help to enhance the IT management competence in SMEs during the implementation of AIS projects.

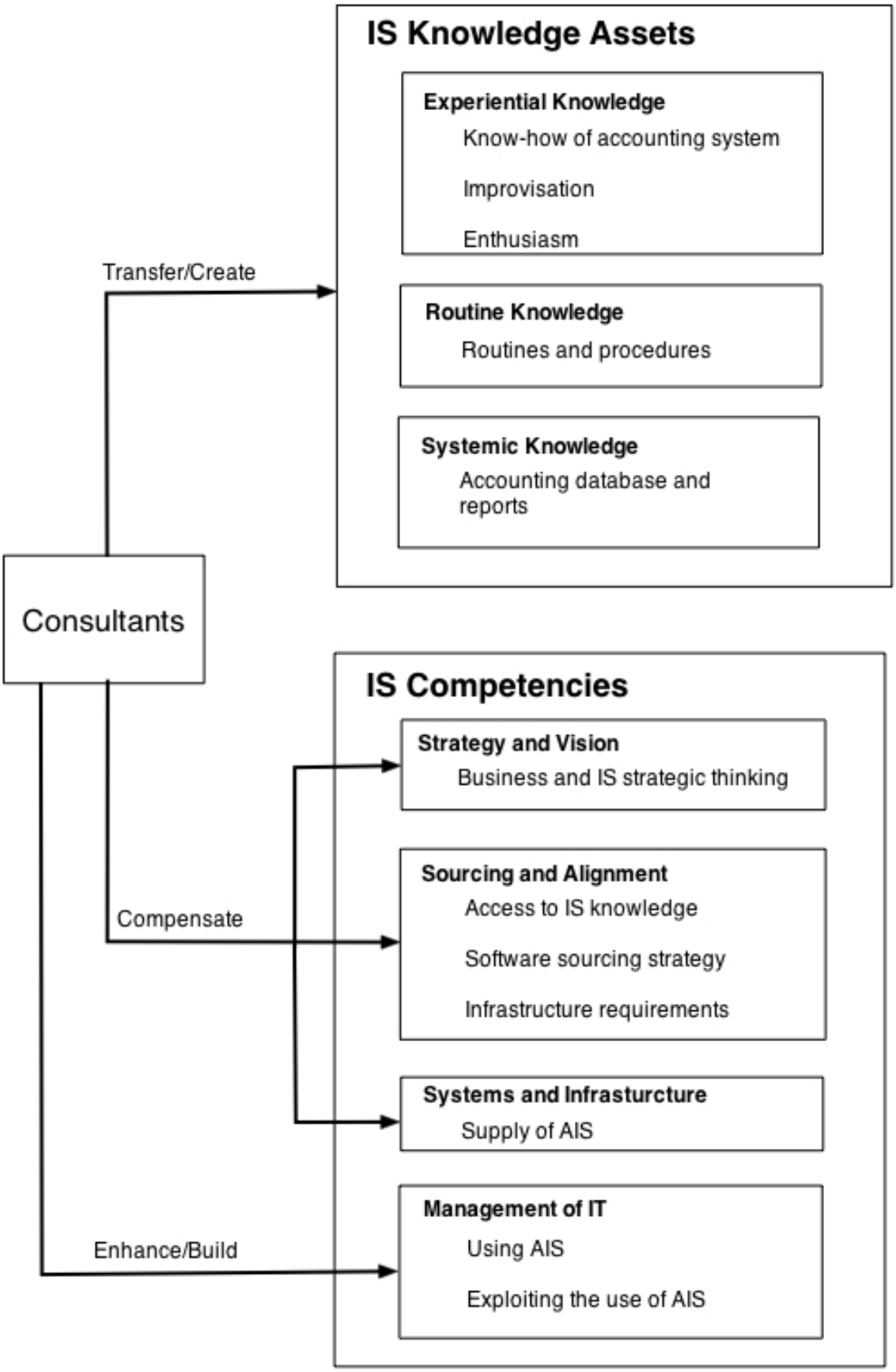

Figure 8.2: Impact of consultants on IS knowledge assets and IS competencies in SMEs

8.6 Summary

Chapter 8 presented the results and analyses of the third and final phase of data collection. This final phase of data collection was designed to test the propositions developed during the second phase of data collection. Seven propositions were tested; three related to IS knowledge assets and four related to IS competencies or abilities.

A single case was used to test the proposition, which showed that consultants assisted in the creation or transfer of three types of knowledge assets in SMEs. These were identified as: experiential, systemic and routine knowledge assets. It was confirmed that consultants have an impact IS knowledge assets in SMEs and the impact aided SMEs in creating knowledge assets. Using the SECI knowledge create/transfer process, the creating of IS knowledge assets were described. It was shown in each of the creation processes that the consultant played a role in aiding the creation/transfer of knowledge.

It was also shown that consultants have an impact on IS competencies or abilities of SMEs. However, the impact was described mainly as consultants compensating for a lack of abilities on one hand, and enhancing abilities that were present on the other.

9 DISCUSSION

9.1 Introduction

Chapter 9 discusses the results and findings presented so far in this study. The study is designed to understand and explain how consultants impact SMEs when these organisations engage consultants to implement information systems. Using a three-phase approach to data collection, this study shows that IS knowledge and IS competencies are key themes in the IS implementation process. These themes were introduced in Chapter 5.

This study also identifies various types of knowledge assets that are impacted by consultants: experiential knowledge, routine knowledge and systemic knowledge. It also identifies several IS competencies that consultants impact like IT management; sourcing and alignment; strategy and vision; competency in process integration; systems and infrastructure. How these themes were derived are presented in Chapter 7 and further investigated and presented in Chapter 8.

Chapter 9 discusses the implications and contributions of the above findings. It concludes that consultants may be regarded as a key component of knowledge creation processes in SMEs and contains the following sections:

9.2 Summary of Findings

9.3 Discussion of Findings

9.4 Validity and Reliability

9.5 Contribution of this study

9.6 Limitations

9.7 Conclusions

9.8 Future Research

9.2 Summary of Findings

This section recaps the major findings of the various stages of data collection of this study. It is noted that three phases of data collection were used to address the aims and objectives of the study. The results and findings of each of these phases are presented in brief, and the overall findings of this study are discussed.

9.2.1 Phase-one Data Collection

This phase of data collection was designed to be mainly exploratory. The idea was to discover the key themes surrounding the impact of consultants during IS implementation. This phase of data collection was also to determine the role of consultants during IS implementation. The case study method was chosen to generate data. The cases involved organisations -- SMEs that had implemented accounting software or systems with the assistance of consultants -- and Consultants who implemented accounting systems in SMEs. There were four SME cases and three consultant cases in this phase of data collection.

The results indicated that the role of consultants during IS implementation is best understood as intermediary. Two intermediary roles were presented: the conduit role (Howcroft and Light, 2008) and the '*marriage broker'* role (Bessant and Rush, 1995 and Carey, 2008). The results of this phase of data collection also revealed two key themes related to the impact of consultants during the implementation of IS. These

themes are IS knowledge and IS competencies. It also emerged that the attributes of consultants were important during the implementation of IS. The results indicated that for consultants to be effective during IS implementation they should possess these attributes. The attributes were grouped and classified as hard skills, soft skills and teacher/trainer skills. Using resource-based theory and knowledge-based theory, the analysis of the data indicated that IS competencies and IS knowledge assets should be studied as they represent the key areas where consultants appear to have an impact on SMEs. These findings are captured in Figure 5.6. This study aims to understand how consultants affect IS knowledge and IS competencies in SMEs. The emerging themes justify the need to further investigate IS knowledge and IS competencies. The impact of consultants on IS knowledge and IS competencies were investigated in the second phase of data collection.

9.2.2 Phase-two Data Collection

The second phase of data collection was designed to be exploratory and described how consultants influenced IS knowledge and IS competencies in SMEs. Similar to the first phase of data collection, the cases were consultants who implemented AIS in SMEs and SMEs that implemented AIS with the assistance of consultants. Five consultant cases and three SMEs were involved in this phase of data collection. The SMEs were used to find supporting evidence to the findings of the consultant data.

The results indicated that consultants aided the creation of IS knowledge assets in SMEs. Consultants, it was discovered, influenced the knowledge creation process in SMEs and transferred/created IS knowledge assets in these organisations. The knowledge assets transferred/created with the assistance of consultants were categorised as experiential, routine and systemic knowledge assets (Chou and He, 2004). The results further

indicated that consultants also had an impact on IS competences in SMEs. It was found that consultants either enhanced IS competencies that existed or they compensated for a lack of IS competencies where such abilities were lacking in SMEs. Using the frameworks of Eikebrokk and Olsen (2007) and Cragg et al. (2011) four competencies were identified as being influenced by consultants during the implementation of accounting IS: Strategy and Vision, Sourcing and Alignment, Systems and Infrastructure Competence, and IT Management Competence. The findings of this phase of data collection are displayed in Figure 7.1. There are seven propositions, three regarding the impact of consultants on IS knowledge assets and four regarding the impact of consultants on IS competencies. These propositions were tested by a third phase of data collection summarised below.

9.2.3 Phase-three Data Collection

The third phase of data collection was designed to be confirmatory and was used to confirm/refute the propositions derived from the phase two data collection efforts. This phase of data collection was used to understand and further explain how consultants influenced IS knowledge assets and IS competencies in SMEs during the implementation of IS. The case study method was also used in this phase of data collection. However, the design was longitudinal in nature and involved a single SME and a single consultant working together to implement an accounting system. This design was different from the other data collection phases as it was not a retrospective look at IS implementation, but involved the assessment of IS knowledge assets and IS competencies before and after implementing AIS.

The results of this phase of data collection showed that consultants influence IS knowledge in SMEs by creating/transferring various types of knowledge to SMEs

during implementation projects. The three types of knowledge assets considered: experiential, routine and systemic knowledge assets were all confirmed by the data. The results also indicated that consultants had an impact on IS competencies during implementation projects which is best described as compensatory. That is, where SMEs lacked abilities consultants overcame the lack of abilities. Four competences were considered and the results showed that consultants compensated for three of these competences: Strategy and Vision, Sourcing and Alignment and Systems and Infrastructure Competence. The only competence that consultants enhanced or aided in building was the IT Management competence.

9.3 Discussion of Findings

The findings of the first phase of data collection were primarily exploratory and showed that IS knowledge and IS competencies or abilities were key themes in IS implementation. It was also confirmed that RBT and KBT were useful theories for understanding IS implementation in SMEs.

Viewing organisations using KBT and RBT simultaneously is an ideal way to view SMEs. This is because SMEs are known to suffer from a lack of knowledge and resources. Using KBT and RBT in a complimentary manner presents a clearer picture of SMEs at any given point in time. KBT is used to understand and describe IS knowledge in the organisation focusing on the creation of knowledge assets. RBT is used to understand and explore the concept of IS competencies or business abilities relating to IS. At any point in the organisation's existence it would have developed certain abilities that are best described and understood through the RBT lens. When one surveys an organisation at a point in its existence, that snapshot should reveal the existence of

knowledge relating to IS, and business abilities related to IS; both of which change dynamically as the organisation '*lives'*. Using KBT and RBT in this research creates a balanced view of SMEs as each theory has strong explanatory powers that relate to knowledge and competencies.

The following discussion focuses on the questions and objectives posed at the start of this investigation into understanding the impact of consultants on SMEs. First to be discussed is the role of consultants, followed by the impact that consultants have on IS knowledge assets. The impact that consultants have on IS competences is discussed followed by a discussion on the emergent themes discovered throughout this study.

9.3.1 Role of IS Consultants During IS Implementation

The results of this study have found, as supported by existing literature, that consultants play an intermediary role in SMEs. Consultants act as bridging intermediaries by disseminating knowledge (Carey, 2008). In this role, consultants carry out activities such as: transferring specialised knowledge; sharing ideas and experiences; acting as a point of contact for a wide range of specialised services; and assisting clients to clearly specify their particular needs (Carey, 2008). This role is described as the '*marriage broker*' role (Rush and Bessant, 1995).

In this role the consultant provides a way for SMEs to express their needs and to obtain services that would otherwise not be easily accessible. In this study, this was evident when consultants suggested that SMEs usually knew they had a problem but could not identify the actual problem. The consultants assisted SMEs to figure out the problem and then proceeded to advise or assist with resolving the issue. In this way, SMEs

gained access to services, like advice (analysis and recommendations) and gained knowledge about their problems.

Consultants also act as 'conduits'. In this intermediary role, consultants, as shown in this study, implemented, customised and integrated IS on behalf of SMEs. Consultants have an impact or influence on SMEs. This current study purports that the impact is on IS knowledge and IS competencies because knowledge and abilities are key themes in the implementation process. When SMEs reach out to consultants they are affected by the interaction. In the following sections, the impact of consultants on SMEs is discussed focussing on the transfer of IS knowledge and development of IS competencies.

9.3.2 Impact of Consultants on IS Knowledge Assets

It has already been noted that consultants act as bridging intermediaries by disseminating specialised knowledge (Carey, 2008). According to Nonaka et al. (2006), knowledge assets are the outcomes of the knowledge creation processes in organisations. Knowledge assets are intangible, dynamic and unique to the organisation. They consist of routines and know-how (Nonaka et al., 2006). This discussion focuses on the specialised knowledge, ideas and experiences that consultants transfer to SMEs thereby, explaining how knowledge is created by the implementing SMEs. Since the outcomes of knowledge creation are knowledge assets, the impact on three types of knowledge assets (experiential, routine and systemic knowledge assets (Chou and He, 2004)) were considered in this study.

9.3.2.1 Experiential Knowledge Assets

The results of this study indicate that engaging consultants influences knowledge assets in SMEs. As an outcome of the knowledge creation process, the results show that experiential knowledge assets mainly refer to know-how related to the implemented system. At the start of an implementation project (especially where a new system is being implemented) it is unlikely that staff in SMEs will know how to operate and utilise the system. As part of the implementation project, consultants ensure that users become capable of using the system. The main method used by consultants during projects is training; although following the completion of a project, consultants usually continue to support SMEs and employ methods such as one-on-one help sessions.

The various stages of the SECI model (Nonaka and Takeuchi, 1995) represent distinct ways in which knowledge may be created/converted. Internalisation of the SECI model, for instance, is the process of converting explicit knowledge into tacit knowledge. In thinking about experiential knowledge assets, consider the internalisation knowledge creation process whereby consultants provide explicit knowledge that is internalised by users in SMEs (Chou and He, 2004). Through training provided by consultants, users in SMEs internalise knowledge. By listening and practicing, explicit knowledge is internalised to create new tacit knowledge. Users internalise knowledge related to operating and utilising the implemented system. This shows that consultants, in their intermediary role, help create/transfer knowledge to SMEs by the internalisation knowledge creation process.

9.3.2.2 Routine Knowledge Assets

As an outcome of the knowledge creation process, the results show that routine knowledge assets mainly refer to routines and procedures established by consultants. The study shows that as a result of the implementation project, consultants recommend procedures for SMEs to follow in executing accounting function using the implemented system. The routines and procedures are usually informal, but nonetheless provide a means for SMEs to gain knowledge.

In discussing about routine knowledge assets the Externalisation knowledge creation process of the SECI model is useful. Externalisation is the process of converting tacit knowledge to explicit, thereby allowing it to be shared by others and become the basis of new knowledge. Consultants have a wealth of tacit knowledge from their experience in implementing IS in various organisations. Consultants, using their knowledge and expertise, develop procedures or routines for the operation and use of the implemented system. In essence the tacit knowledge of consultants is somewhat articulated and made explicit in the routines and procedures that are put in place for SMEs. As noted previously, these routines are usually informal in nature; sometimes they are documented or communicated orally. In addition, the use of routines and procedures assist SMEs with learning the system. The routines may be regarded as explicit knowledge, and by following the routines/procedures SMEs acquire tacit knowledge. As part of the learning process users in SMEs may need to explore the system on their own. Consultants aid this process with the procedures and routines that they suggest to SMEs.

The results of the study therefore suggest that consultants help to create routine knowledge assets in SMEs through the externalisation knowledge creation/transfer process.

9.3.2.3 Systemic Knowledge Assets

The final type of knowledge asset considered is systemic knowledge. As an outcome of the knowledge creation process, the results show that systemic knowledge assets mainly refer to output gained from the accounting database. Databases contain knowledge that can be combined to create new knowledge. Users need to know how to utilise the database to extract the knowledge it contains, which is usually in the form of reports. Consultants help SMEs to utilise databases by teaching users how to generate reports and consider which reports would be of value to their company. The Combination knowledge creation process of the SECI model involves the transformation from explicit knowledge to new explicit knowledge. The use of a database to create a business report is an example of the combination process. Consultants also influence this knowledge creation process because most IS used in businesses require the set up, configuration and use of databases. Consultants help users to utilise the accompanying databases, hence the combination process leads to the creation of systemic knowledge assets in SMEs.

9.3.2.4 Socialisation - Knowledge Creation Process

Knowledge creation processes such as SECI (Nonaka and Takeuchi, 1995) explain how knowledge is created in larger organisations and is used in this study to explain how SMEs create knowledge during IS implementation. The various stages of the SECI model represent distinct ways in which knowledge is created. It has already been shown through externalisation, combination and internalisation processes that consultants aid

SMEs in building knowledge; but what about the socialisation knowledge creation process?

Socialisation involves sharing tacit knowledge through face-to-face communication or shared experience. In the socialisation process new knowledge is created through interaction, observation, discussion, analysis, and time spent together. Implementation projects in SMEs (and in particular AIS implementation projects) usually have short timeframes, which is the period covering the actual installation of the software up to sign-off. However, the process and interactions with consultants usually last longer in many cases. Knowledge is created or converted during interactions, discussions and analysis, all of which take place during IS implementation projects. Know-how knowledge is tacit in nature and involves more than simply entering data; it includes utilising the system and improvising while doing so. Know-how needed to utilise the implemented system is transferred from consultant to the SME. After a project is considered completed, consultants usually continue to work actively with SMEs in the on-going support phase. Since the collection of data for phase three of this study ended at the completion of the project, it was not possible to observe any further interactions between the consultant and the SME. It can be inferred that through face-to-face interactions between consultants and SMEs, that consultants influence trust and enthusiasm in SMEs, as well as the creation of knowledge through the socialisation knowledge creation process.

9.3.2.5 Summary

Nevo et al. (2007) noted that large firms engage IT consultants to transfer their knowledge (expertise) to the internal IT staff. However, the authors noted that firms were dissatisfied with consultants sighting a lack of knowledge transfer (Nevo et al.,

2007). This study found that consultants did transfer knowledge to SMEs in contrast to the suggestions of Nevo et al. (2007). This may be related to the difference between large businesses and their smaller counterparts. From the discussions with consultants throughout this study it became apparent that it was in the interest of consultants to ensure SMEs gained knowledge during consultant-SME encounters. Interestingly, this study's findings are in agreement with Swanson (2010) who found that consultants affected the know-how of their clients. The study conducted by Swanson (2010) related to large organisations and innovation projects.

These findings are useful as they represent a key link between the use of consultants and the development and growth of IS knowledge. Prior research (Carey, 2008) states that consultants transfer specialised knowledge to their clients, however there is no mention of what type of specialised knowledge is transferred nor does the research tell us how specialised knowledge is transferred. The findings on IS knowledge presented in this study, become a point of departure from prior knowledge concerning the transfer of knowledge between consultants and SMEs.

9.3.3 Impact of Consultants on IS Competencies

In their intermediary role as '*conduits*', consultants provide advice to assist SMEs with finding appropriate products, the implementation and customisation of the products, training and support service and the integration of software with existing systems (Howcroft and Light, 2008). From the data collected in the first phase of the study, IS competencies emerged as an area/theme of interest. Research using RBT suggests that there are IS competencies that organisations come to possess. IS competencies represent various abilities of an organisation that allows it to leverage its IS resources (Cragg et al., 2011).

While research discusses various IS competencies (Eikebrokk and Olsen, 2007 and Cragg et al., 2011), this study identifies IS competencies related to the implementation process influenced or affected by consultants. Adopting the frameworks proposed by Eikebrokk and Olsen (2007) and Cragg et al. (2011) showed that consultants affected four IS competences (Strategy and Vision, IT Management, Systems and Infrastructure, and Sourcing and Alignment). Suffering from a lack of IS competencies means SMEs are unable to leverage IS resources on their own and rely on the ability of consultants. The SMEs as noted in this study lacked IS competencies. While it is proposed that IS competencies or abilities exist in SMEs (see the study of Cragg et al., 2011) this study finds that due to the nature of SMEs such abilities may in fact be lacking. Consequently, consultants do not directly affect these abilities, but compensate for them, since they do not exist. Such an argument raises the issue that the resource state of SMEs may influence the effect that consultants have on IS competencies in SMEs.

9.3.3.1 Strategy and Vision

Although SMEs may recognise the need for IS, according to Cragg et al. (2011), consultants assist SMEs in recognising the potential, implications and value of implementing IS. It also involves the ability to define a business case and establish appropriate criteria for making decisions about IS. It also involves recognising the value that the IS will have for the business (Eikebrokk and Olsen, 2011). What this study shows is that consultants help SMEs to understand the value of IS, including the implications of implementing IS and in some instances helping SMEs to establish the business case for the project. This is because SMEs may lack the ability to establish formal businesses cases for implementing IS.

This study has revealed that SMEs do not follow formal processes in relation to implementing IS. It was revealed that SMEs usually encountered problems either related to the implementation of an off-the-shelf product or had problems and thought software would provide a solution to their problem. The choice of IS was usually made following a recommendation from a friend, employee and accountants. When SMEs turned to consultants, this study indicates that consultants become a source/or a means for SME to make use of the strategy and vision competence. Through the '*conduit'* or '*marriage broker*' role, consultants allow SMEs to exploit the benefit of a competence that SMEs may not possess internally. Therefore, for SMEs lacking abilities related to the strategy and vision competence consultants were likely to compensate for the lack of ability during the implementation of IS.

9.3.3.2 Management of IT

In this study, the IT management competence consists of several abilities that SMEs could possess. These include the ability to implement and integrate IS solutions. SMEs, it has already been shown, rely on consultants to provide IS solutions. The SMEs considered in this study are not in a position to carryout IS implementation and integration without the assistance of consultants. In fact, as this study indicates, consultants completely carryout such tasks as part of IS implementation projects.

The IT Management competence also looks at the ability to apply and use software or technology. Before the implementation of IS (primarily new IS) users are usually unable to use the software. This is intuitive since the users would not have had exposure to the system before it is installed in the organisation. However, after the installation of the system it is expected that users will be able to utilise the system. Consultants play a major part in ensuring that users in implementing SMEs are able to utilise the system.

The main method used by consultants to accomplish this is through training. However, as shown by the results of this study, the training takes the form of one-on-one sessions, discussions and other informal methods like telephone conversations and emails that aid in assisting users to utilise IS. By so doing consultants build/enhance the ability of SMEs to utilise IS.

The literature points out that SMEs require this ability offered by consultants to integrate IS into the business to gain benefits from the use of IS (Eikebrokk and Olsen, 2007). The results of this current study indicate that without the assistance of consultants, SMEs are unable to integrate IS into the organisation. This study finds that consultants still assist and help SMEs with managing business processes affected by the implementation and use of IS. For example, after implementation SMEs learn what requirements are more suited to their type of organisation and operation. They learn how to use or integrate the use of IS with their current processes; and over time SMEs become more capable in areas related to the integration of IS with the organisation's business processes.

Interestingly, in this study the IT Management competence was the only one that existed in the case SMEs. Although not all components of this were in existence it was still felt that SMEs possessed the IT Management competence. While consultants compensate for some aspects of the IT Management competence, they also enhanced other aspects. This finding suggests strongly that the level/state of the abilities of SMEs determine whether consultants will enhance or compensate for the particular ability.

9.3.3.3 Systems and Infrastructure

The Systems and Infrastructure competence, considered in this study, relates to the organisation's ability to manage the supply of AIS. An important aspect of this ability is managing IS supplier relationships or, in this study, to manage the relationship that exist between SME and consultant. Through on-going relationships with clients consultants are able to provide guidance and assistance to SMEs on a long-term basis. The development of the relationship between the consultant and client is a two-way process; while consultants may strive to build on-going relations with their clients, SMEs are willing to develop on-going relations with their consultants for support and guidance. The evidence anecdotally suggests that an on-going relationship may have a positive effect on the growth and development of IS competencies in SMEs.

Another aspect of the ability to manage the supply of IS involves the development of staff. Consultants are responsible for the training and developing the ability of staff to use the installed system. Therefore as part of the implementation project consultants provide training in order to develop the skills of staff and enable them to utilise the system.

9.3.3.4 Sourcing and Alignment

Sourcing and alignment involve the ability of SMEs to define the IS strategy and software sourcing strategy (Cragg et al., 2011). The results of this study reveals that SMEs invest in IS because of the recommendations of external parties such accountants. SMEs often lack the ability to evaluate the various software solutions and do not understand the infrastructure requirements of IS they wish to implement. Eikebrokk and Olsen, (2007) define the sourcing and alignment competence as the organisation's ability to secure access to relevant competencies either inside or outside of the

organisation and as the ability to combine and use those competencies. From this definition the focus is on the ability of SMEs to develop partnerships in order to gain access to the abilities that they lack. Consultants play a key role by assisting SMEs with sourcing and acquiring IS, as well as assisting them to determine the infrastructure needed to implement the solution. Through the relationship developed between the consultant and SME, consultants help SMEs to integrate and to utilise IS.

9.3.3.5 Summary

In summarising the impact that consultants have on IS competencies it is noted that prior research (Scupola, 2003; Eikebrokk and Olsen, 2007; Cragg et al., 2011) identified various IS competencies that may exist in SMEs. This study contributes to the research by identifying IS competencies that are relevant during the implementation of IS and creates an important association between the use of consultants and the existence of IS competencies in SMEs. This study contends that consultants compensate for IS competencies rather than build IS competencies in SMEs during IS implementation projects. The only exception is the Management of IT, consultants assist SMEs to enhance their ability to use and gain benefit from IS. It may be argued that the ability to use the system is related to the experiential knowledge asset '*know-how'*. It was previously contended that consultants create/transfer know-how to SMEs during implementation projects therefore it appears that there is a relationship between ability to manage IT and the transfer of knowledge from the consultant to SME.

Prior studies such as Scupola (2003), Eikebrokk and Olsen (2007) and Cragg et al. (2011) suggests that SMEs possess various IS competencies; however this was not the case in this study since the SMEs in this study lacked IS competencies. The findings of this study are in alignment with Bessant and Rush (1995) who point out that firms hire

consultants to compensate for a lack of capability and contended that consultants effectively compensated for the firm's lack of capability.

9.3.4 Other Findings and Themes

This study posited that the attributes of consultants may have an effect during IS implementation projects. It was suggested that effective consultants possess these attributes, which were classified as hard skills, soft skills and teacher/trainer skills. This is a finding of interest as there is a dearth of research on the types of attributes of effective consultants and how these may affect the impact that consultants have on SMEs or IS implementation. Intuitively, one may assume that consultants need to be knowledgeable and skilful in order to successfully implement IS in SMEs. At a high level of abstraction this study reveals that the skills of consultants should involve knowledge of the IS solution, ability to install and integrate systems and project management skills. For the purpose of this study these are termed hard skills and are skills traditionally associated with consultants (Freedman, 2000). Throughout this study the importance of the relationship between consultants and SMEs is highlighted as an important mechanism through which consultants are able to influence SMEs. Communication skills and people skills emerge as important skills of effective consultants and were classified as soft skills; there are important for the development of the relationship between consultants and SMEs.

Teacher/trainer skills emerge as an attribute of effective consultants; through training and knowledge transfer consultants are able to influence SMEs during implementation projects.

9.3.5 Summary of Discussion

This study had two major objectives. The first objective was to determine the role(s) played by consultants when implementing IS in SMEs and therefore provide answers to the following questions: What role do IS consultants undertake/play when they assist SMEs with the implementation of IS and how do consultants, by fulfilling their role, impact SMEs?

The second objective was to determine how theories of the firm may be used to explain the role and the impact that IS consultants have on SMEs. This objective answers the question how consultants affect IS knowledge and IS competencies in SMEs and thereby explains how consultants influence/affect SMEs.

As previously discussed, the role of consultants is best described as intermediary. Consultants are mediators who provide services to SMEs that ultimately have an impact the IS knowledge and IS competencies of these organisations.

The resource-based view of the firm posits that firms possess resources that are leveraged to help the firm create and maintain a competitive advantage. In this study RBT is used to describe the nature of SMEs as suffering from a lack of abilities, and to identify various IS competencies that organisations may possess. It is noted that consultants affect IS competencies in organisations by either compensating for resources that SMEs do not possess or by enhancing competencies that SMEs may already have internally. In other words, consultants mediate for a lack of IS competencies in SMEs (Figure 9.1).

Knowledge-based theory is used to describe the nature of SMEs as lacking IS knowledge, and to identify the types of knowledge assets that consultants influence in SMEs. It is noted that consultants aid the development of experiential, routine and systemic knowledge assets in SMEs. In other words consultants mediate for a lack of IS knowledge assets in SMEs (Figure 9.1).

In combining all that has been presented throughout the three data collection phases, Figure 9.2 is presented which represents influence of consultants on SMEs during the implementation of IS.

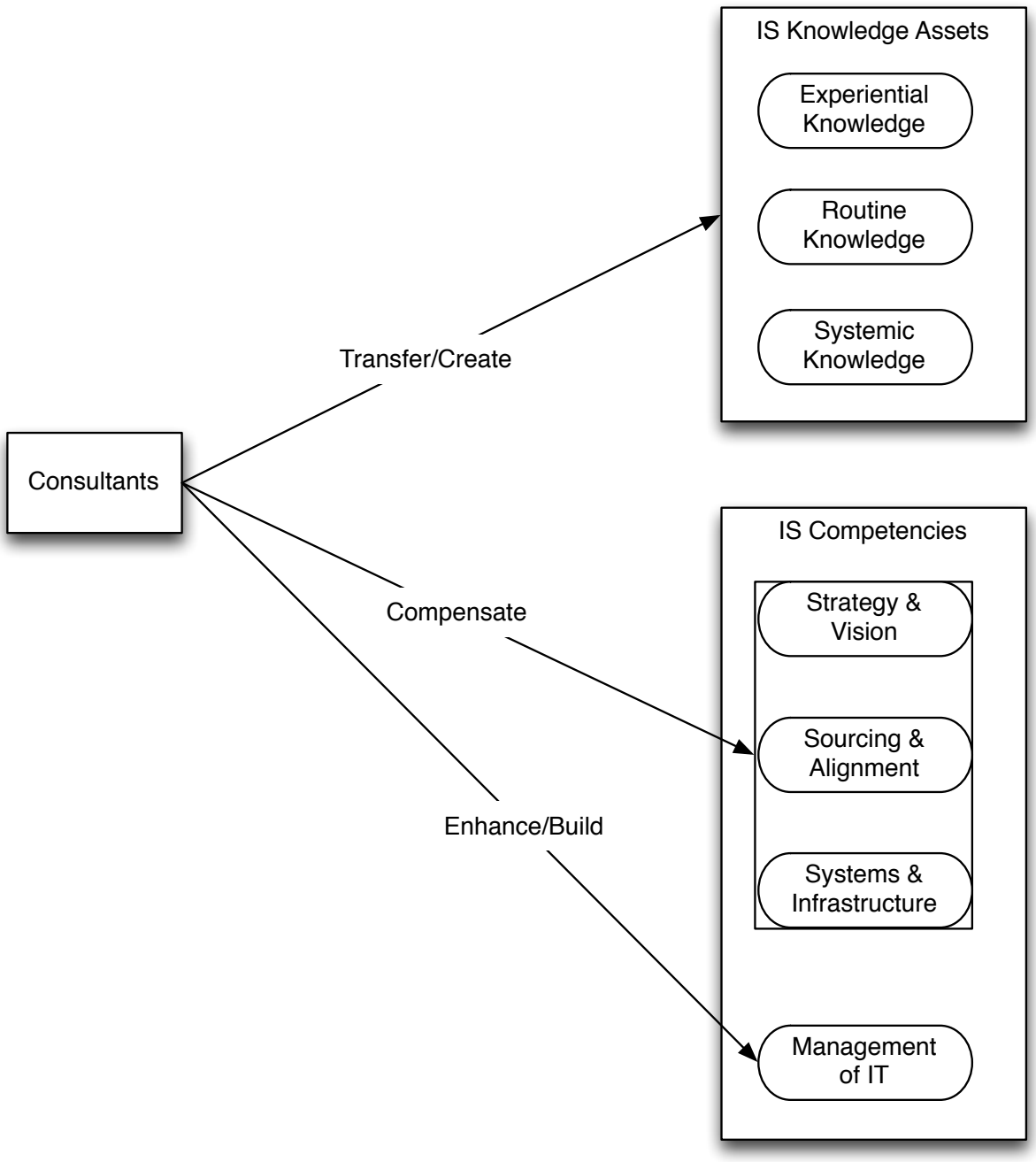

Figure 9.1 Impact of consultants on IS knowledge assets and IS competencies in SMEs

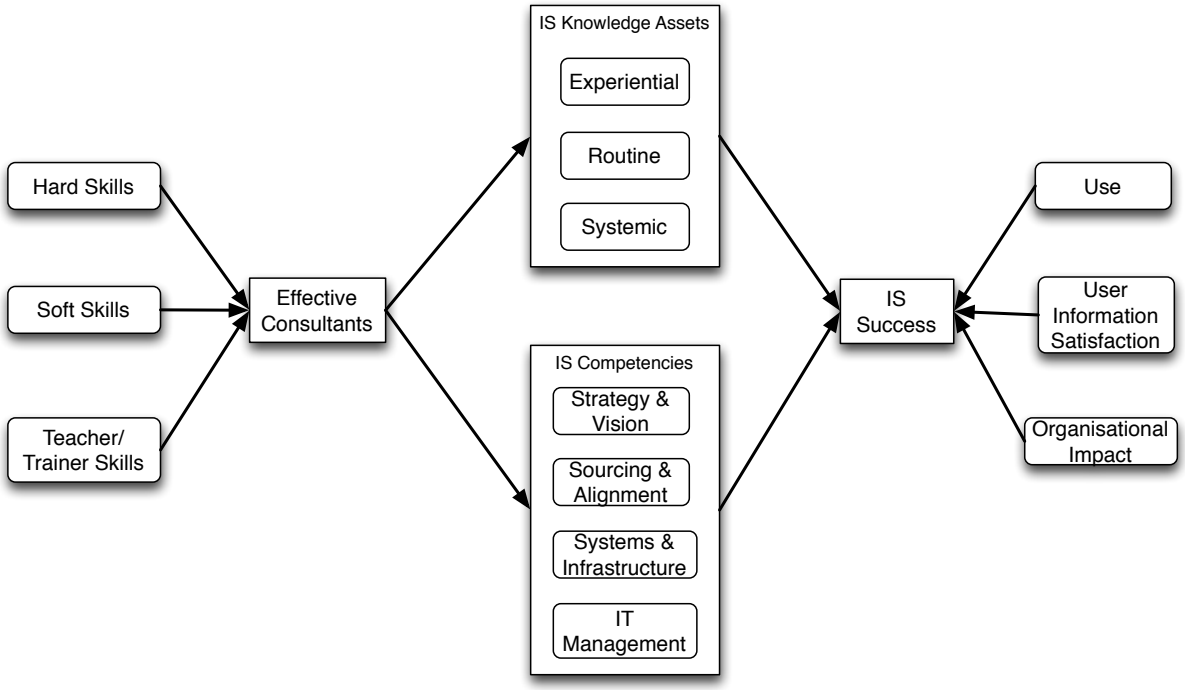

Figure 9.2 The impact of consultants on SMEs

9.4 Reliability and Validity

According to Easterby-Smith et al. (2008) the validity of constructionist research is obtained if a study clearly gains access to the experiences of those in the research setting and the validity of relativist research is obtained if a sufficient number of perspectives are included. Following the guidance of Easterby-Smith et al. (2008) in order to ensure that the results of this study are valid, this study was designed to take into consideration all necessary perspectives. The study focused on the implementation of IS in SMEs and the use of consultants, consequently, the perspectives of SMEs and the perspectives of consultants were considered as these represent the key entities involved in the implementation process. In SMEs the key individuals were Owner/Managers, employees responsible for the project and users. In the initial data collection phases, the experiences of the participants, SMEs and consultants, were captured using a retrospective approach. In the final phase of data collection the

experiences of participants were captured during the execution of an implementation project.

Easterby-Smith et al. (2008) note that reliability in constructionist research is achieved when there is transparency about how sense was made from the raw data. Reliability in relativist research is achieved when other observers would note similar observations. It is noted that IS implementation projects in SMEs follow the same lifecycle. Consultants carryout the following steps during implementation projects:

1. Initiation
2. Analysis and Recommendations
3. Installation
4. Configuration and Integration
5. Training
6. Maintenance (On-going support)

The observations and subsequent analysis carried out in this study were done within the boundaries of the software implementation lifecycle. The activities and interactions during the implementation lifecycle were the same for all IS implementation projects. Throughout the lifecycle there were interactions between consultants and SMEs. It is through these interactions that consultants influence IS knowledge assets and IS competencies. For example, it was shown that through training, and on-going support IS knowledge was increased, and throughout the project IS competencies were impacted. In addition, the analysis conducted throughout this study follows the same process. In the first phase and second phase, the analysis involved cross-case analysis of the SME cases then further cross analysis of SME and consultant cases.

Easterby-Smith et al. (2008) point out that generalisability of constructionist research is achieved when the concepts and constructs derived from the study have relevance to other settings. Generalisability in relativist research is obtained when the probability that the patterns observed in the sample will be repeated in the general population. The SMEs in the study were chosen as they were representative of SMEs suffering from a lack of knowledge and a lack of IS competencies. However, the SMEs were selected from wide ranging industries and are spread throughout New Zealand. There are no reasons to believe that they are not representative of all SMEs. Additionally, the consultants included the types of consultants known to operate within the SME sector, the type of consultants that specialised in AIS projects and were spread throughout New Zealand. Hence the findings of this research are generalizable to AIS implementations where accountant/consultants are likely to be used by SMEs.

This is bolstered by the fact that the implementation of AIS follows the same lifecycle and this suggests that the findings presented here should be applicable to all AIS implementation projects in SMEs. The lifecycle suggested here is the same for other off-the-shelf AIS. Therefore, off-the-shelf AIS implemented with the aid of external experts like consultants, and following the same software lifecycle have the same consultant-SME interactions. Through the interactions of experts and SMEs IS knowledge assets and IS competencies are influenced/affected. Therefore, the findings of this study are relevant in AIS implementation settings.

In concluding this section it noted that this study is primarily exploratory and descriptive, however, a quantitative survey may be needed to further confirm the findings of this study.

9.5 Contribution of Study

Consultants contribute significantly to the implementation of IS in SMEs; yet the pivotal role consultant engagement plays on the use and management of IS in SMEs has not been fully researched. Little is known about the way in which consultants influence SMEs. This study posits that as intermediaries consultants have an impact on IS knowledge assets and various IS competencies in SMEs. The results and conclusions of this study contribute to the existing body of research knowledge in a number of ways. The contribution made by this research is discussed in this section.

This study extends the understanding of the role of consultants in SMEs. While consultants have been recognised as mediators in transferring specialised knowledge to SMEs (Howcroft and Light, 2008 and Carey, 2008), their role in the creation of knowledge has, to this point, been less explored. Prior studies, in large organisations and SMEs, focus on the role of the consultant in providing services to clients. The role of consultants is presented in terms of the services and tasks that consultants perform (For example Basil et al., 1997; Howcroft and Light, 2008; Carey, 2008). This study differs from prior research as it explores the role of consultants by examining the impact that consultants have on SMEs. It is concluded that consultants affect/influence knowledge creation processes of SMEs, hence this study contributes to the existing knowledge on consultants and IS implementation projects by unveiling the role played by consultants in the creation of IS knowledge assets in SMEs.

The findings of this study shed light on the specialised knowledge that is transferred from consultants to SMEs. Prior research mentions that consultants transfer specialised knowledge to SMEs (Carey, 2008); however, what constitutes specialised knowledge is not made clear. By focussing on implementation projects this study reveals that

consultants transfer various types of knowledge assets during IS implementation projects. This study shows that when consultants implement IS they assist SMEs to create experiential, routine and systemic knowledge assets (Chou and He, 2004). This study further reveals how knowledge assets are created/transferred (Nonaka et al., 2000 and Nonaka and Toyama, 2005) and raises questions about the organisational knowledge creation process that may be applicable to SMEs. It is shown that consultants influence each of the separate processes of the SECI knowledge creation model. Therefore, it may be argued that this study contributes to KBT by linking the use of external experts, like consultants, with the creation of knowledge assets in SMEs.

In addition to knowledge creation this study also shows that consultants influence IS competencies in SMEs. While studies have identified various IS competencies in SMEs (Scupola, 2003; Eikebrokk and Olsen, 2007; Cragg et al., 2011), this study reveals the impact that consultants have on IS competencies. This study shows that consultants compensate for the lack of IS competencies in SMEs but may enhance abilities if they exist in SMEs. Prior research suggests that consultants are a source of capabilities for SMEs (Howcroft and Light, 2008). This research adds to knowledge by not only confirming that consultants are a source of IS competencies for SMEs but by also identifying the types of competencies that consultants influence during IS implementation projects. Combining IS competences frameworks of Eikebrokk and Olsen (2007) and Cragg et al. (2011) this study presents a framework of four IS competencies that are relevant to the implementation of IS.

Prior research has primarily focussed on the services, tasks and duties of consultants, and as pointed out by Nevo et al. (2007) the finding and conclusions of prior research is diverse with little agreement. This study presents an alternative approach to studying

consultants by focussing on the impact that consultants have on their clients, in this case SMEs. The services provided by consultants vary from client to client; for example, it was noted during the study that when clients implemented accounting systems for compliance reasons the services provided by consultants would be different compared to when they were implementing the system to improve business processes. This may explain why the findings of various studies differ as pointed out by Nevo et al. (2007). However, by focussing on the impact that consultants have on their clients it may be possible to find agreement across studies on consultants. In the case of IS implementations the impact of consultants is best noted by examining the impact consultants have on IS knowledge and IS competencies in SMEs.

In concluding this section it is noted that SMEs seek to overcome their lack of knowledge and abilities by engaging the services of consultants and more importantly by developing on-going, long-term relationships with consultants. The finding of this study suggests that SMEs should strive to form long-term relationships or partnerships with consultants and should focus on using consultants to develop IS knowledge and IS competences. The use of effective consultants may lead to the presence of IS knowledge and IS competences in SMEs which may lead to IS success (Figure 9.2). The holistic model presented in Figure 9.2 is a first attempt to explore the links between consultants, IS knowledge, IS competencies and IS success. The model, although not been tested in its entirety, still presents a possible explanation of the impact consultants have on SMEs.

9.6 Limitations of Study

The contributions made by this study were discussed in the previous section, however there are limitations to findings of this study. These limitations are presented and discussed in this section.

Although this study highlights IS competencies that are influenced by consultants, this is not an exhaustive list. The study was not intended to determine all of the competencies that may be affected by consultants but only those affected during IS implementation projects. Therefore, the IS competencies presented in this study are not a reflection of all of the IS competencies that may be influenced by consultants. Nonetheless this study identifies IS competencies that are applicable to IS implementation projects.

This study also highlighted various knowledge assets that are transferred by consultants, however this may not be exhaustive list. The study used existing literature (Chou and He, 2004) to identify the knowledge assets that were deemed applicable to this investigation. It is possible that there are other types of knowledge assets created in SMEs but not identified by this study. However, this does not subtract from the overall finding that consultants assist in the transfer and creation of IS knowledge assets in SMEs.

The design of the final data collection phase of this study was longitudinal; it was designed to examine the implementation process during the execution of a project, which in this study lasted about 4 months. This study does not address the long-term impact that consultants may have on IS knowledge and IS competencies is SMEs; to do so would require a longitudinal study designed to observe SMEs for about one year. It is

also noted that the SME-consultant relationship in the longitudinal case was a very close one as such the findings may have limited applicability to SME and consultants with arms-length relationships. Nonetheless, examining SMEs during the execution of project allowed for conclusions to be made about the impact of consultants on SMEs.

Finally, factors that may affect or mediate the findings of this study are not investigated. Although this study indicates that consultants have an impact on IS knowledge assets and IS competencies in SMEs, the effect of other factors on the impact of consultants are not considered. For example, this study does not investigate the effects of:

(1) The type of relationship that exists between consultants and SMEs. This study anecdotally suggest that close on-going relationships between consultants and SMEs may influence the effect that consultants have on IS knowledge and IS competencies.

(2) The reasons why SMEs implement IS. This study suggest that the reason behind the implementation project will affect the impact that consultants have on IS knowledge and IS competencies. For example, consultants suggested if the reason for the implementation project was compliance then there was little or no need to engage in knowledge transfer related to the utilisation of the system. In other words, SMEs that implemented for compliance reasons did not need to know how to utilise the system. Hence consultants would not engage in teaching SMEs how to use the system.

(3) The learning capability/capacity of employees in SMEs. Prior research (see Argote et al., 2003) suggested that the learning capability of individuals might affect knowledge transfer. This study noted that in some instances consultants found that staff members in SMEs were sometimes not suited to operate the implemented system even after training. Argote et al., (2003) pointed out that

even though knowledge is transferred it depended on the receiver whether this knowledge was captured. This study does not consider this possibility.

(4) The attributes of consultants. In the first phase of data collection this study unearthed several attributes applicable to consultants. It is possible that the attributes of consultants, for example, teaching skills/abilities may affect the impact that consultants have on IS knowledge and IS competencies. In other words, the various attributes of consultants are likely to affect their ability to transfer knowledge and enhance or even compensate for IS competencies.

9.7 Conclusions

In considering all that has been presented and discussed in this study it is concluded that consultants implementing AIS influence SMEs in three major ways:

1. Consultants aid the development of IS knowledge assets in SMEs.

   Consultants achieve this by influencing knowledge creation processes in SMEs. Consultants contribute to knowledge creation processes such as socialisation, externalisation, combination and internalisation (Nonaka et al., 1995). As a result consultants aid the creation of IS knowledge assets. These knowledge assets may be classified as: (i) experiential such as know-how, experience, trust and enthusiasm; (ii) routine, such as established routines that facilitate learning; and (iii) systemic such as reports generated from the software database. Consultant therefore play an important part in the IS knowledge creation processes of SMEs.

2. Consultants compensate for IS competencies that SMEs do not possess internally.

Consultants achieve this by providing/selling their abilities to SMEs; thereby compensating for particular IS competencies that may be lacking in SMEs. Three IS competencies are identified:

(i) Strategy and Vision - the ability to engage in business and IS strategic thinking related to the implementation and use of IS.

(ii) Sourcing and Alignment - the ability to gain access to relevant IS knowledge, the ability to establish/determine a software sourcing strategy for IS and the ability to determine the infrastructure requirements for IS.

(iii) Systems and Infrastructure Competence - the ability to manage the supply of IS.

3. Consultants enhance existing IS competencies in SMEs.

   Consultants achieve this by providing/selling their abilities to SMEs; thereby assisting SMEs to improve/enhance existing IS competencies. One IS competency is identified: IT Management - the ability of SMEs to use IS and the ability to exploit the use of IS by maximising the benefits of IS.

9.7.1 Implication for SMEs

The results and conclusions of this investigation into the impact that IS consultant have on SMEs has several implications for SMEs. As a result of the findings of this study it is recommended that owners/managers, administrators and other users of AIS in SMEs focus on building IS knowledge and IS competencies in the organisation.

Managers and Administrators in SMEs should pay close attention to the nature of the relationship that they have with IS consultants since a close, on-going long term relationship would benefit the organisation. In fact, the relationships should be considered a '*strategic partnership*' where any knowledge and abilities lacking in

SMEs are sourced through the use of consultants. This is not to suggest that SMEs become totally dependent on consultants for all knowledge and abilities but the relationship with consultants should be a strategic where consultants partner with SMEs such that they are able to source, implement, utilise and benefit from investing in IS.

Through the relationship with consultants, SMEs should insure that they strive to build internal knowledge assets by making use of the knowledge transfer capability of consultants. In addition to developing IS knowledge, SMEs should also focus on developing IS competencies or abilities. Consultants are a source of IS competencies therefore SMEs should also strive to build, enhance or improve internal IS competencies by learning from consultants.

9.7.2 Implication for Consultants

Consultants should view the process of implementing AIS in SMEs holistically, involving more than the installation of software but also the development of IS knowledge and abilities (IS competencies) in SMEs. In other words, consultants should use IS implementation as an opportunity to empower SMEs to grow in knowledge and ability to exploit the use of AIS. From the discussions with consultants, some have already began to embrace this view and are encouraged to continue in order to assist SMEs to benefit not only from investing in AIS but also in engaging consultants. Recognising the importance of knowledge consultants need to be aware of the part that they play in the knowledge creation processes of SMEs and seek to actively develop/transfer IS knowledge to clients. Therefore, consultants are encouraged to aid SMEs with know-how, hands-on expertise and experience. They are also encouraged to help establish routines to aid learning and ensure that SMEs are capable of developing and utilising knowledge gained from sources such as databases.

To complement the development of knowledge, consultants need to also focus on the IS abilities of SMEs. In cases where SMEs lack abilities consultants should position themselves to supply the needed abilities; however, consultants need to also focus on developing IS abilities (competencies). For example, while consultants should seek to provide implementation and integrations abilities on one hand, they should seek to develop the ability of SMEs to specify requirements for IS.

One may be tempted to think that developing the knowledge and ability of SMEs may not be in the interest of consultants. One may contend that if SMEs grow in knowledge and ability they may no longer require the assistance of consultants. Such a view or way of thinking would be incorrect since SMEs will continue to need the assistance of consultants even if their knowledge and abilities increase. This is because as the knowledge and abilities of SMEs increase they are likely to demand more in depth use of AIS, which will require the assistance of consultants. This was learned during the second phase of data collection. The consultants interviewed noted that even when SMEs were knowledgeable consultants still assisted with more advanced use of the system.

An ideal way to assist SMEs in developing IS knowledge and IS competencies is to develop long-term on-going relationships/partnerships with SMEs. Consultants should then be able to oversee the growth and development of IS knowledge and IS competencies in SMEs. Therefore, this study concludes by advising both consultants and SMEs to seek long-term on-going partnerships or relationships when it comes to the implementation of AIS.

Before concluding this section on the implications of this study it is important to note that the ability of consultants is also important during implementation projects. In fact, this was alluded to in this study when discussing the attributes of consultants. It was noted that the attributes of consultants may have a moderating effect on the transfer of knowledge from consultants to SMEs and also on the development of IS competencies.

9.8 Future Research

The findings of this study presents new opportunities for further research into IS consultants and SMEs. There is an opportunity to further investigate how SMEs create knowledge with the aid of consultants. This study shows that consultants influence knowledge creation processes in SMEs during IS implementation. There is a need for further research on the knowledge creation processes in SMEs and how external experts like consultants may fit into or influence these processes. There is a need to develop knowledge creation models specific to SMEs that explain the growth and development of knowledge in these organisations.

This research also suggests that there is a need for further research into IS competencies in SMEs. Further research is needed to identify the types of competencies needed for effective use of IS as well as how consultants may play a part in the development of these competencies. In addition, as pointed out in the discussion on limitations, there are factors that may affect or mediate the impact consultants have on IS knowledge and IS competencies in SMEs. Therefore, further research is needed to investigate the effects of such factors on the development of IS knowledge and IS competencies in SMEs. For example, research should investigate the mediating effect of:

1) The attributes of consultants. How do the abilities or skills of consultants affect the transfer of knowledge and growth of IS competencies?
2) The reasons for the IS project. What effect does the reason behind the project have on the transfer of IS knowledge and growth of IS competencies?
3) The learning capability of SMEs. To what extent does the learning capability of SMEs affect the transfer of IS knowledge and growth of IS competencies?
4) The relationship between consultants and SMEs. What type of relationship between consultants and SMEs best facilitates the transfer of IS knowledge and the development of IS competencies in SMEs?
5) The effect of IS knowledge on IS success. What IS knowledge assets are predictors of IS success in SMEs?
6) The effect of IS competencies on IS success. What IS competencies are predictors of IS success in SMEs?

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11 Appendices

11.1 Appendix A

11.1.1 Installation Process

The steps followed in a typical implementation of an accounting systems are presented and described. It is however noted that the exact steps carried out in an implementation will vary from client to client as well as from consultant to consultants. What is presented here is an attempt to combine the steps into a formal implementation process. This was obtained by asking each consultant interviewed what steps were usually performed during a typical implementation project. Synthesizing what was learned from each consultant the following seven steps are highlighted as the key steps involved in implementing an accounting IS in SMEs.

The initial process involves contact where SMEs get in contact with consultants and discuss they situation. Consultants will do further analysis and make recommendations as to the best software solution for the SME. The steps are as follows:

1) Determine software solution
2) Check/verify that hardware requirements (Computers/Servers/Network)
3) Install the software system
4) Set up and install the company's data file. This may involve setting up some of the following depending on the software, SME or type of business:
    i) The chart of accounts - this is done either by sitting and discussing client, or by obtaining information from the client's accountant. If the system is replacing an existing system this information is obtained from that system.

ii) Customers and supplier - import customers and suppliers if it is possible otherwise teach users how to create a customer and supplier records.

iii) Invoicing

iv) Customer payments

5) Customisation of the software (if required)

i) This may involve customising forms, reports and GST

6) Training

i) This may be one-on-one sessions, walk through using the system to carryout various task that are required of the user or more formal training. Training may be as little as a few hours or as long as a few days.

7) Follow up

i) This usually occurs a few weeks after the product is 'live' and being used in the SME. Consultants will follow-up to see that all is going well and to assist SMEs with issues or problems.

11.2 Appendix B

11.2.1 Phase-One Interview Protocols

Interview Protocol used for SMEs

Background

1) What business are you in?

   [ ] Service Business [ ] Wholesale [ ] Retail

   [ ] Manufacturing [ ] Trade [ ] Other _____

2) How long have you been in the business?

   _____

3) How many fulltime / part-time employees do you have?_____

4) What is your sales turnover? (This question provides an indication of the size of your organisation)

   [ ] <$100,000 [ ] $100,000 - $1/2 M [ ] $1/2M - $1M

   [ ] $1M – 5M [ ] $5 M - $10M [ ] >$10 M

5) How many customers do you have?

   [ ] < 50 [ ] 50 - 100 [ ] 100 - 200 [ ] 200 - 500 [ ]> 500

6) What is your role in the organisation?

   _____

Consultant Engagement Process

7) What was the reason for embarking on the project and why did you need the services of a consultant?

8) What type/category of consultant was engaged?

   a) Independent consultant [ ]

   b) Vendor-consultant [ ]

   c) Independent Reseller-consultant [ ]

   d) Large consulting firm [ ]

   e) Other external help (Specify):

   _____

9) What were the intermediate steps in acquiring consultant services? Can you explain first, how this whole process of contacting and engaging the consultant starts? And then what happens? And so on …I like to understand what's happening in detail from the beginning to the end of the whole process.

10) What was your experience of the engagement process?

11) With reference to the most recent implementation:

    a. Where there any problems/issues encountered during the engagement process?

b. How were the problems/issues resolved?
c. What impact did the problems/issues have on the entire implementation process?

The Role of the consultant

12) What services did the consultant provide?

13) Were you satisfied with the services provided by the consultant? Explain why or why not?

14) What would you describe as the role of the IS consultant in SMEs?

15) What was your experience/relationship like with the consultant during the implementation process?

Consultant and Project Effectiveness

16) In general, when is a consultant considered an effective consultant?

17) Would you consider the consultant that you engaged as effective and why?

18) Generally, how did you assess the performance of the consultant?

Timeline / Planning

19) How long did it take to implement the system (From initial engagement of the consultant to eventual us of the system)? _____

20) In terms of the timeline of acquiring and implementing the software, did it go according to your plans? Was it:

a) Shorter than expected [ ]
b) On time [ ]
c) Longer than expected [ ]
d) Way longer than expected [ ]

21) Why did the implementation take longer than expected?

Cost / budget

22) In terms of cost of acquiring and implementing the software, did it go according to your plans? Was it:

a) Below budget [ ]
b) On budget [ ]
c) Over budget [ ]
d) Way over budget [ ]

23) Why was the implementation over budget?

Scope / quality

24) Does the software do all that you were hoping it will do before you acquired the software? If not, in what aspects it is not meeting your needs?

Knowledge

25) Was there any knowledge gained by you/your organisation from have worked with the consultant? Specifically what knowledge was gained?

26) Were there any oraganisational/personal skills gained/enhanced by the consultant? Specifically what skills were gained?

27) Overall was there anything new that you/your organisation learned from having used a consultant?

   a) For example procedures or know-how

   b) Is there anything that you now know how to do that you did not know before working with the consultant?

Project Success

28) In general, when is an IS project considered successfully?

29) With reference to your most recent implementation project:

   a. Was the implementation a success?

   b. Why or why not?

Overall Satisfaction

30) Are you satisfied with your (new) information system?

Very Dissatisfied 1 2 3 4 5 6 7 Very Satisfied

Satisfaction – Likelihood of Recommending

31) How likely are you to recommend the consultant to other SMEs?

Very unlikely	Somewhat unlikely	Somewhat likely	Very likely
[ ]	[ ]	[ ]	[ ]

Satisfaction – Likelihood of re-use

32) How likely are you to re-engage the same consultant on future IS projects?

Very unlikely	Somewhat unlikely	Somewhat likely	Very likely
[ ]	[ ]	[ ]	[ ]

Interview Protocol used for Consultants

Consultant background

1. Tell me a bit about yourself and your background (education, work experience and expertise)?

   Your company

   Number of employees:

   Education/training:

   Work experience:

   IT consultancy experience (years & number of clients).

   Type of businesses of clients (manufacturing, service, etc)

   Size of businesses of clients (# of employees)

   Other experience:

   Expertise:

   Implementing what IS packages?

   Providing training

   IT knowledge (networking, etc.)

2. What services do you provide?
3. What type/category of consultancy would you categorise your firm as?
   a) Independent consultant [ ]
   b) Vendor-consultant [ ]
   c) Independent Reseller consultant [ ]
   d) Large consulting firm [ ]
   e) Other (Specify): _____

Consultant Engagement Process

4. What are the reasons small and medium enterprises seek the assistance of a consultancy firm like yours?

5. What are the intermediate steps in acquiring consultant services by SMEs? Can you explain first, how this whole process of contacting and engaging your firm starts?

And then what happens? And so on …I like to understand what's happening in detail from the beginning to the end of the whole process.

6. What was your experience during the engagement process described above?

7. With reference to the most recent engagement process that you were involved with:
    a. Where there any problems/issues encountered during the engagement process?
    b. How were the problems/issues resolved?
    c. What impact did the problems/issues have on the entire implementation process?

The Role of the consultant

8. What are the most common services SMEs require when acquiring and implementing an information systems package?
9. What would you describe as the role of the IS consultant in SMEs?
10. With reference to your most recent implementation:
    a. What were you required to do during the implementation? What specific task and duties did you carry out?
11. What was your experience with the client and other persons involved in the implementation process?

Consultant and Project Effectiveness

12. In general, when is an IS implementation considered successfully?
13. With reference to your most recent implementation project:
    a. Was the implementation a success? Why or why not?
14. In general, when would you consider a consultant an effective consultant?
15. In general, if you were to judge your performance as a consultant after completion of a project, what would be the key areas that your assessment would be based on?

Knowledge

16. In terms of your most recent implementation, what knowledge would you say that the organisation gained from you working with them?

11.2.2 Phase-Two Interview Protocols and Questionnaires

Interview Protocol use for Consultants

Part A – Company & Personal Information

1. Tell me a bit about yourself and your company?
    a. Number of employees:

    b. Type of businesses of clients (manufacturing, service, etc.)
    c. Size of businesses of clients (# of employees)

2. Tell me a bit about yourself and your background (education, work experience and expertise)?
    a. Education:
    b. Training (IT/IS/Accounting):
    c. Work experience:
        i. IT consultancy experience (years & number of clients):
        ii. Other experience:
    d. Expertise:
        i. Implementing what IS packages?
        ii. Providing training (IT/IS, Accounting)
        iii. IT knowledge (networking, hardware, etc.)

3. What type/category of consultancy would you categorise your firm as?

    f) Independent consultant [ ]

    g) Vendor-consultant [ ]

    h) Independent-reseller [ ]

    i) Large consulting firm [ ]

    j) Other (Specify): _____

Part B - Knowledge Assets

The following questions are to examine the accounting skills and know-how of client SMEs and see how these skills and know-how are shared.

1. Who are the main sources of hands-on accounting experience in client SMEs (employees, partners, suppliers, consultants, accountants)?
    a. How do you go about sharing hands-on accounting experience with client organisations?
    b. How do you go about ensuring that hands-on accounting experience is willingly shared throughout the client organisation?

2. How do you go about ensuring that the employees of the client organisation acquire accounting know-how?

The following questions are concerned with the accounting IS actions and practices of client SMEs.

3. Could you describe any organisational routines surrounding the use of the accounting system established by yourself?
    a. How are these routines established?

4. How do you go about sharing new accounting knowledge with the employees in client organisations?

The following questions are concerned with the systemised and packaged accounting IS related explicit knowledge.

5. How do you ensure that the organisation utilises material such as accounting software manuals, DVDs, CDs and other AIS documentation?

6. How do you ensure that the organisation makes use of information stored in the accounting IS database or data-store?

Part C - Organisational IS Competencies
These set of guiding questions listed here covers all of the IS competencies under investigation; consequently it is more likely that a subset of these questions will be relevant to you.

Topic: Business and IS strategic thinking
2. How would you say that you assist client SMEs to identify and evaluate the potential and implications of AIS based opportunities?

IS Innovation
    a. How do you assist client SMEs to recognise business opportunities from use of software applications. (e.g. That they may improve the firm's performance by implementing an accounting system)

Business Case and Investment Criteria
    b. How did you go about assisting client SMEs to establish a business case for their AIS investment?

Including IS in business strategy
    c. How do you assist client SMEs to include IT when making plans for their business (e.g. having an IT budget)

Information governance
    d. How do you assist client SMEs to create information management policies (e.g. specify the roles and responsibilities of management and any IS staff)

Topic: Ability to define the IS contribution
3. How would you say that you assist client SMEs with their ability to align their investment in the AIS with business priorities?

IS Alignment

a. How do you assist client SMEs to change the IS program to reflect the priorities of the business?

Business Process Management

b. How do you assist client SMEs to be able to improve their business processes (e.g. the way a customer's order is processed) by using the accounting system?

Define IS Requirements

c. How do you assist client SMEs specifying the business requirements that the accounting system must meet in order to be successful?

Accessing IS Knowledge

d. How do you assist client SMEs in obtaining guidance on accounting systems?

Topic: Ability to define IS Strategy

4. How would you say that you assist client SMEs in defining the information and application architectures, technology infrastructure and IS resources needed?

Software Sourcing Strategies

a. How do you assist client SMEs in defining appropriate software sourcing strategies (e.g. buy a package or develop in-house)?

IS Acquisition Process

b. How do you assist client SMEs in evaluating various accounting systems supply options.

Technology Infrastructure Requirements

c. How do you assist client SMEs with the computing hardware and network infrastructure needed to implement the accounting system?

Topic: Ability to exploit the benefit of AIS implementation

5. How would you say that you assist client SMEs to maximise the benefits they obtain from effective use of the system?

Benefits Management

a. How do you assist client SMEs to identify the benefits from using the accounting system?

b. How do you assist client SMEs to plan for the benefits from using the accounting system?

Managing Change

c. How do you assist client SMEs to make changes to business processes in order to maximise the benefits of the accounting system?

Project Management

d. How do you assist client SMEs to manage the implementation project in terms of scope, resources and time?

Inter-organisational Collaboration

e. How do you assist client SMEs to work with business partners (e.g. customer and suppliers) to enable external IS (accounting system) integration?

Topic: Ability to deliver AIS solutions

6. How would you say that you assist client SMEs to convert their requirements into IS assets (business solutions)?

Application Development

a. How do you assist client SMEs to customise in-house software applications (Accounting systems) to satisfy business needs?

Implementation and Integration

b. How do you assist client SMEs to install the accounting system in the organisation?

Apply and Use Technology

c. How do you assist client SMEs to effectively use the accounting system?

d. How do you assist client SMEs to gain the skills and abilities to apply and use the implemented AIS?

Business Continuity and Security

e. How do you assist client SMEs with effective recovery, contingency and security processes to prevent business failure?

Topic: Ability to manage AIS supply

7. How would you say that you assist client SMEs to create and maintain their technology resources and applications?

Manage IS Supplier Relationships

a. How do you go about establishing an on-going relationship with client SME?

b. Describe the kind of relationship do you have with client SMEs.

Information asset management and maintenance

c. How do you assist client SMEs to ensure that technology (including data and applications) is effective (e.g. by implementing controls and procedures for the use of the system)?

d. What procedures do you have to ensure that AIS will be effective? (e.g. what controls and procedures are in place for the use of AIS)

Staff Development

e. How do you assist client SMEs to ensure that the technical skills of staff are adequate for the firm's accounting needs?

Organisational Knowledge Assets (Survey Questions)

In this section we would like you to assess your impact on the various knowledge assets of the organisation. The questions are in the form of propositions. We ask that you give your evaluation of how accurately you feel that these propositions describe the situation in your company.

1. With reference to the implementation of the accounting systems and your interactions with client SMEs, please indicate how well you agree with the proposition by answering a number between **1: strongly disagree up to 7: strongly agree** (✓ or ×). :

Organisational Knowledge Assets	**1**	**2**	**3**	**4**	**5**	**6**	**7**
You assist client employees to gain hands-on experience with the accounting software.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You assist client employees to gain accounting experience.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You assist client employees to gain know-how (regarding the accounting software).	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You positively influence client employees' enthusiasm about using the accounting software.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You teach client employees how to improvise as needed when using the accounting software.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Client SMEs have a level of trust in you.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You provide client SMEs with well-organised accounting software documentation (Books, CDs, DVDs, Magazines, Web resources, Manuals).	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You provide client employees with easy access to information stored in the accounting database.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You provide client employees with sufficient knowledge (know-how) to carry out day-to-day activities related to the use of the accounting system.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You make client employees fully aware of the importance of knowledge in the routine operations of the accounting system.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You make client employees able to explore new knowledge (on their own) when using the accounting system.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Organisational IS Competencies (Survey Questions)

In this next section we would like you to assess your impact on the company's level of competency in various topics related to accounting information systems. The questions are in the form of propositions. We ask that you give your evaluation of how accurately you feel that these propositions describe your situation. If you find that any of the propositions are irrelevant, please indicate so by answering "not applicable".

2. With reference to the implementation of the accounting systems and your interactions with client SMEs, please indicate how well you agree with the proposition by answering a number between **1: strongly disagree up to 7: strongly agree** (✓ or ×).

Concept of Accounting IS	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
You assist client SMEs in gaining knowledge of how accounting systems can be of value to their business.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You assist client SMEs in gaining knowledge of how their main competitor(s) use accounting software to support similar business areas.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Strategic Planning	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
You assist client SMEs in gaining knowledge of strategic planning.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You assist client SMEs to develop a set of strategic planning techniques.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Sourcing Competencies	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
You assist client SMEs in gaining knowledge on outsourcing of activities to other companies.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You assist client SMEs in gaining knowledge on how to use competencies in their business partners.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Alignment Competencies	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
You assist client SMEs in using the competencies their already have.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Competencies in Process integration	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
You assist client SMEs in working with the impact of the accounting IS on its business processes.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You assist client SMEs in reorganising work to utilise new information technology.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Management of IT	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
You assist client SMEs in achieving the anticipated benefits from IT investments.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
System Infrastructure	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
You assist client SMEs by ensuring that the systems infrastructure is very flexible in relation to the company's future needs.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Interview Protocol used for SMEs

Accounting and AIS Skills

1. What knowledge of accounting and accounting principles do you possess (e.g. double entry book keeping, balance sheet, G.S.T, assets, liabilities, equity, etc.)?

2. To what extent do you use your current accounting system (daily, weekly, monthly)?

3. What do you use the system for (e.g. reporting, forecasting, day to day activities like spending, receiving money, etc.)?

Knowledge Assets

Skills and know-how

4. Who were the main sources of hands-on accounting experience (employees, partners, suppliers, consultants, accountants)?
5. Who were the main sources of hands-on accounting software experience (employees, partners, suppliers, consultants, accountants)?
    a. How is the hands-on experience shared throughout the organisation?

6. How did you acquire your knowledge of how-to do accounting (know-how)?
7. How did you acquire your knowledge of how to use the accounting software (know-how)?
    a. How does the organisation support or encourage the acquisition of know-how knowledge by employees?

8. How did the consultant assist you/your organisation with gaining accounting know-how and skills?
9. How did the consultant assist you/your organisation with gaining accounting software know-how and skills?

AIS actions and practices

10. Could you describe any organisational routines governing the use of the accounting software?
    a. How were these routines established?
    b. How are these routines shared among employees?

11. How do you acquire/gain new accounting knowledge?
12. How do you acquire new software knowledge?

Systemised and packaged knowledge

13. How do you go about utilising material such as accounting software manuals, DVDs, CDs and other software documentation?

14. How do you make use of the information stored in the accounting IS database or data-store?
    a. How did the accountant assist you with this?

IS Competencies
Topic: Business and IS strategic thinking

How did the consultant assist you/your organisation to identify and evaluate the potential opportunities from using accounting software?

IS Innovation

1. What business opportunities if any does using your accounting software bring to the organisation?
2. How were these business opportunities realised?

Business Case and Investment Criteria

3. What criteria did you use to make decisions about the accounting software to implement?
4. How did you go about establishing a business case (reasons) for the accounting software?
    a. How did the consultant assist you with this?

Topic: Ability to define the IS contribution

How did the consultant assist you/your organisation to align your investment in the accounting software with business priorities?

Business Process Management

1. Did the implemented accounting software require business process changes and if so did you as an organisation carry them out on your own or with assistance?
2. What role did the consultant play in the designing and improving of business processes in the organisation?
3. If required how capable are you as an organisation to change business processes in the organisation?

Define IS Requirements

4. Describe your organisation's ability to define appropriate business requirements for your software (AIS). Were you able to precisely define how the software should operate and fit into the organisation?
5. What role did the consultant play in defining appropriate requirements for your accounting software?

Accessing IS Knowledge

6. How did you go about identifying sources to get guidance on the implementation project?
7. What sources would the organisation use to get guidance on the implementation project?

8. What role did the consultant play in assisting you to identify sources from which you could obtain guidance?

Topic: Ability to define IS Strategy

How did the consultant assist you/your organisation to define the software, hardware and IS resources needed to implement the accounting software?

Software Sourcing Strategies

1. How did you go about deciding which software sourcing (package acquisition, in-house development, outsource) strategy to use?

IS Acquisition Process

2. How did you go about evaluating the various accounting software options and suppliers?

Technology Infrastructure Requirements

3. As an organisation were you able to indicate the infrastructure (hardware/software) and resources like people and skills that were needed for accounting software to be implemented successful?
4. What role did the consultant play in assisting the organisation to define the technology infrastructure (computing hardware and networks) needed for successful implementation of your accounting?

Topic: Ability to exploit the benefits of AIS implementation

How did the consultant assist you/your organisation to maximise the benefits obtained from effectively using the software?

Benefits Management

1. As an organisation did you plan for the benefits of the accounting software?
2. What benefits do you get from your accounting system?
3. What role did the consultant play in assisting the organisation to plan for and evaluate the benefits from the accounting software?

Managing Change

4. Were you required to make (organisational) changes to gain benefits from your current accounting software, if so how did you go about doing this?
5. What role did the consultant play in assisting the organisation to make changes so that the benefits of accounting software were realised?

Project Management

6. Were you able to manage the implementation project internally, that is manage the scope, resources and timeline?

7. What role did the consultant play in assisting the organisation to manage the implementation project, that is manage the scope, resources and time?

Inter-organisational Collaboration

8. What kinds of alliances have you developed with (e.g. customers and suppliers) to enable external accounting software integration between your system and theirs?
9. Have you developed or improved on existing alliances with the implementation of the accounting software?
10. How did the consultant assist you with this?

Topic: Ability to deliver AIS solutions

How did the consultant assist you/your organisation to specify a software solution that met your requirements?

Application Development

1. Were/Are you able to develop or customise your own in-house accounting software?

Implementation and Integration

2. Were you able to implement the accounting software on your own (that is: were you able to install, configure, customise, integrate, convert data and train users)?
3. What role did the consultant play in assisting the organisation to implement the accounting software (that is, install, configure, customise, integrate IS, convert data and train users)?

Apply and Use Technology

4. Do you possess the skills and abilities to apply and use the accounting software?
5. How aware are staff of the accounting software and how willing are staff to use the accounting software?
6. Describe the attitude that employees in the organisation have towards the accounting software and its use?
7. What role did the consultant play in assisting the organisation to apply and use the accounting software?

Business Continuity and Security

8. What recovery, contingency and security processes do you have in place to prevent failure?
    1. Did the consultant assist you/your organisation with this? How?

Topic: Ability to manage AIS supply

How did the consultant assist you/your organisation to manage your software suppliers and internal and external software resources.

Manage IS Supplier Relationships

1. What kind of software supplier (software vendor, consultant, Accountant) did you use?
2. What kind of relationship do you have with the software supplier? Is it an on-going relationship?
3. Does the relationship work well for both the organisation and the supplier; is it beneficial to the organisation and the supplier?
4. What role did the consultant play in the relationship between the organisation and the software supplier?

Information asset management and maintenance

5. What procedures do you have to ensure that accounting software will be effective? (e.g. what controls and procedures are in place for using accounting software)
    a. Who put these procedures in place, you/consultant?

Staff Development

6. Are the accounting/software skills of the organisation adequate/sufficient for the needs of the organisation?
7. What role did the consultant play in ensuring that the accounting/software skills of the organisation are adequate/sufficient for the needs of the organisation?

Company Information (Survey Questions)

1. Approximately, how many employees are there in your company? _____ employees

2. In what type of industry is your company?
   [ ] Service Business [ ] Wholesale [ ] Retail [ ] Manufacturing [ ] Trade

3. How long (years) has the business been in operation? _____ years

4. What is your sales turnover? (Provides an indication of the size of your organisation)
   [ ] < $100,000 [ ] $100,000 - $1/2 Million [ ] $1/2M - $1 Million
   [ ] $1M – $5Million [ ] $5M - $10 Million [ ] > $10 Million

5. Approximately, how many customers do you have?
   [ ] < 50 [ ] 50 - 100 [ ] 100 - 200 [ ] 200 - 500 [ ] > 500

6. What accounting software is currently used in the organisation?

   MYOB [ ]
   Accredo [ ]
   Quickbooks [ ]
   Greentree [ ]
   Infusion [ ]
   AttachePro [ ]
   Cashbooks [ ]
   CashManager [ ]
   Other [ ] Specify: _____

   a. How long have you been using your accounting software?
      _____

   b. Did you engage a consultant (expert) to carry out the implementation of the accounting software? [ ] Yes [ ] No

      i. What kind of external expert did you use?

         Accounting IS Consultant [ ]
         Accountant [ ]
         Other [ ] Specify:
         _____

7. To what extent are IT activities in your company implemented by consultants?

   a very low extent 1 2 3 4 5 6 7 a very high extent

8. To what extent is your company knowledgeable about commercially available accounting packages?

   a very low extent 1 2 3 4 5 6 7 a very high extent

9. To what extent is your company informed about providers of accounting IS training?

   a very low extent 1 2 3 4 5 6 7 a very high extent

10. To what extent has your company implemented its accounting IS plans?

    a very low extent 1 2 3 4 5 6 7 a very high extent

Knowledge Assets

In this section we would like you to assess the various knowledge assets of the organisation. The questions are in the form of propositions. We ask that you give your evaluation of how accurately you feel that these propositions describe the situation in your company.

11. With reference to the implementation of the accounting system and interactions with the consultant, please indicate how well you agree with the proposition by answering a number between **1: strongly disagree up to 7: strongly agree** (✓ or ✗). **As result of engaging a consultant:**

Knowledge Assets	**1**	**2**	**3**	**4**	**5**	**6**	**7**
You gained hands-on experience with using the accounting software.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You gained experience in accounting.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You know-how to use the accounting software.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You were enthusiastic about using the accounting software.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You learned to improvise as needed when using the accounting software.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You have a high level of trust in the consultant.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You received well-organised accounting software documentation (Books, CDs, DVDs, Magazines, Web resources, Manuals).	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You now have easy access to information stored in the accounting database.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You gained sufficient knowledge (know-how) to carry out day-to-day activities using the accounting software.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You are now fully aware of the importance of knowledge in the routinely using the accounting software.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
You are now able to explore new knowledge using the accounting system.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Organisational IS Competencies

In this next section we would like you to assess your company's level of competency in various topics related to accounting information systems. The questions are in the form of propositions. We ask that you give your evaluation of how accurately you feel that these propositions describe the situation in your company. If you find that any of the propositions are irrelevant, please indicate so by answering "not applicable".

12. With reference to the implementation of the accounting system and interactions with the consultant, please indicate how well you agree with the proposition by answering a number between **1: strongly disagree up to 7: strongly agree** (✓ or ×). **As result of engaging a consultant:**

Concept of Accounting IS	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
As an organisation you gained knowledge of how accounting systems can be of value to the business.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
As an organisation you gained knowledge of how your main competitor(s) use accounting software to support similar business areas.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
In general, as an organisation you now have a good understanding of the accounting software.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Strategic Planning	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
As an organisation you gained knowledge of strategic planning.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
The company now has a well-developed set of strategic planning techniques.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
In general, as an organisation you now have a good understanding of strategic planning.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Sourcing Competencies	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
As an organisation you gained knowledge on outsourcing of activities to other companies.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
As an organisation you gained knowledge on how to use competencies in our business partners.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Alignment Competencies	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
In my company, business and IT managers now agree on how IT contributes to business value.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
In my company, there is now effective exchange of ideas between business people and IT people.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
In general, my company is now good at using the competencies it already has.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
In general, my company is now good at using competencies represented in our business partners.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Competencies in Process integration	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
My company is now actively working with the impact of the accounting IS on its business processes.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
In general, my company is now good at reorganising work to utilise new information technology.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Management of IT	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
My company's IT resources are now effectively managed.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
My company is now good at achieving the anticipated benefits from IT investments.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
System Infrastructure	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
The systems infrastructure is now very flexible in relation to my company's future needs.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
The IT systems now make it possible for my company to effectively cooperate electronically with business partners.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

11.2.3 Phase-Three Interview Protocols and Questionnaires

The SME

Interview Protocol

1. Tell me a bit about yourself and your background (education, work experience and expertise)?
    - a Education: .....
    - b Training (IT/IS/Accounting): .....
    - c Work experience:
        - i Accounting administration experience (years & number of clients):…..
        - ii Other experience: .....
    - d Expertise:
        - i What AIS packages? .....
        - ii Providing training (IT/IS, Accounting).....
        - iii IT knowledge (networking, hardware, etc.).....

2. How long have you been the Administrator at Edgehill Care?

3. Describe the role that you play at Edgehill Care.

4. Describe the tasks and duties that you perform at Edgehill Care.

Knowledge Assets

The following questions are to examine the accounting skills and know-how of the organisation and see how skills and know-how are shared. In other words what is the state of the Administrator's knowledge of Accounting and AIS (ASB) before the implementation.

Experiential Knowledge Assets

1 Tell me about the hands-on accounting experience in Edgehill Care.
- How did employees obtain their hands-on accounting experience (employees, partners, suppliers, consultants, accountants)?

2 Describe the know-how (knowing how to do) accounting of staff at Edgehill Care.
- How was their accounting know-how acquired?

3 Tell me about Edgehill Care's hands-on experience with the ASB software.

4 Describe Edgehill Care's know-how of (knowing how to use) the ASB software.

5 Describe Edgehill Care's staff enthusiasm with the ASB accounting system?

6 How capable are Edgehill Care's staff at improvising when using the ASB accounting system, if you need to?

The following questions are concerned with the accounting IS actions and practices of the organisation. Routine Knowledge Assets

1 What routines are they surrounding the use of the current accounting system?

- How were these routines established?
- How were these routines shared among employees?

2 How does Edgehill Care go about exploring and acquire new accounting knowledge?

3 How important is knowledge for the operations of the accounting system?

The following questions are concerned with the systemised and packaged accounting IS related explicit knowledge. Systemic Knowledge Assets

1 Does Edgehill Care utilising material such as accounting software manuals, DVDs, CDs and other AIS documentation?

2 How does Edgehill Care make use of the information stored in the accounting IS database or data-store?

Organisational IS Competencies

Topic: Business and IS strategic thinking

Tell me about Edgehill Care's ability to identify and evaluate the potential and implications of AIS based opportunities.

1. Did Edgehill Care establish a business case for the ASB accounting system to be implemented?

2. How did Edgehill Care go about establishing the business case?
   a What criteria did you use to make decisions about the ASB software to be implemented?

Including IS in business strategy

3. How did Edgehill Care go about planning for the ASB accounting system, was it done as part of business planning?

4. Does Edgehill Care have an IS budget as part of your planning for this project?

Information governance

5. Does Edgehill Care currently have information management policies detailing how employees create, access, store, and dispose of information whether of a personal or business nature?

6. How does Edgehill Care go about establishing these policies?

7. Does Edgehill Care have established roles and responsibilities for general and any IS staff?

8. How did Edgehill Care go about establishing these roles?

Topic: Ability to define the IS contribution

Tell me about Edgehill Care's ability to align their investment in the AIS with business priorities.

IS Alignment

1. Describe Edgehill Care's ability to adapt or change the investment in IS if the business priorities of the organisation change?

Business Process Management

2. Edgehill Care's ability to carry out business process changes resulting from the implementation of the ASB accounting system?

Define IS Requirements

3. Describe Edgehill Care's ability to define appropriate business requirements for your system. Are you able to precisely define how ASB should operate and fit into the organisation?

Accessing IS Knowledge

4. How did Edgehill Care go about identifying whom to use to get guidance with this current implementation project?

5. Who did Edgehill Care use to get guidance on this current project?

Topic: Ability to define IS Strategy

Tell me about Edgehill Care's ability to define the information and application architectures, technology infrastructure and IS resources needed to implement the ASB accounting software.

Software Sourcing Strategies

1. How did Edgehill Care go about deciding which software sourcing (package acquisition, in-house development, outsource) strategy to use?

IS Acquisition Process

2. How did Edgehill Care go about evaluating the various accounting software options and suppliers?

Technology Infrastructure Requirements

3. Describe Edgehill Care's ability to indicate the infrastructure (hardware/software) and resources like people and skills that are needed for the accounting system to be implemented successful?

Topic: Ability to exploit the benefit of AIS implementation

Tell me about Edgehill Care's ability to maximise the benefits they obtain from effective use of the system.

Benefits Management

1. Does Edgehill Care evaluate the benefits of the current accounting software and how do they go about doing this?

2. What benefits does Edgehill Care get from your current accounting software?

3. In relation to the current project has Edgehill Care planned for the benefits of implementing the new ASB accounting system and how did/do they intend to do so?

4. What benefits should Edgehill Care expect to get from the new ASB accounting system?

Managing Change

5. How does Edgehill Care intend going about making (organisational) changes so that the benefits of the new ASB accounting system are maximised?

Project Management

6. Describe Edgehill Care's ability to manage the current implementation project internally, that is, manage the scope, resources and timeline?

7. Will Edgehill Care be managing the project internally?

Inter-organisational Collaboration

8. Describe the kinds of alliances that Edgehill Care has developed with (e.g. customers and suppliers) to enable external AIS integration between your system and theirs?

9. Does Edgehill Care expect to develop or improve on existing alliances with the implementation of the new ASB accounting system?

Topic: Ability to deliver AIS solutions

Tell me about Edgehill Care's ability to convert requirements into IS assets (business solutions).

Application Development

1. Describe Edgehill Care's ability to develop or customise their in-house accounting software?

Implementation and Integration

2. Describe Edgehill Care's ability to implement the new ASB accounting system (that is: are they able to install, configure, customise, integrate, convert data and train users)?

Apply and Use Technology

3. Does Edgehill Care possess the skills and abilities to apply and use the system to be implemented?

4. How aware are staff of ASB and how willing are staff to use ASB?

5. Describe the attitude that employees in the organisation have towards ASB and its use?

Business Continuity and Security

6. What recovery, contingency and security processes does Edgehill Care have in place to prevent risk of business failure?

7. How did Edgehill Care go about establishing these processes?

Topic: Ability to manage AIS supply

Tell me about Edeghill Care's ability to create and maintain its technology resources and applications through effective management of the IS supply chain and internal and external IS resources.

Manage IS Supplier Relationships

1. What kind of AIS supplier (software vendor, consultant, Accountant) is Edgehill Care employing on the current project?

2. Describe the kind of relationship Edgehill Care has with this AIS supplier? Is it an on-going relationship or a new one?

Information asset management and maintenance

3. What procedures does Edgehill Care have to ensure that ASB will be effective? (e.g. what controls and procedures are in place for the use of ASB)

Staff Development

4. Do you think that the accounting skills of the organisation are adequate/sufficient for the needs of the organisation?

Company Background Information

1. Approximately, how many employees are there in your company? _____ employees.

2. In what type of industry is your company?

   [ ] Service Business [ ] Wholesale [ ] Retail [ ] Manufacturing [ ] Trade

3. How long (years) has the business been in operation? _____ years.

4. What is your sales turnover? (Provides an indication of the size of your organisation)

   [ ] < $100,000 [ ] $100,000 - $1/2 Million [ ] $1/2M - $1 Million

   [ ] $1M – $5Million [ ] $5M - $10 Million [ ] > $10 Million

5. Approximately, how many customers do you have?

   [ ] < 50 [ ] 50 - 100 [ ] 100 - 200 [ ] 200 - 500 [ ] > 500

6. What accounting software is currently used in the organisation?

   MYOB [ ]
   Accredo [ ]
   Quickbooks [ ]
   Greentree [ ]
   Infusion [ ]
   AttachePro [ ]
   Cashbooks [ ]
   CashManager [ ]
   Other [ ] Specify: _____

   a. How long have you been using your accounting software? _____

   b. Did you engage a consultant (expert) to carry out the implementation of the accounting software? [ ] Yes [ ] No

      i. What kind of external expert did you use?

Accounting IS Consultant	[ ]	
Accountant	[ ]	
Other	[ ]	Specify: _____

7. To what extent are IT activities in your company implemented by consultants?
   a very low extent 1 2 3 4 5 6 7 a very high extent

8. To what extent is your company knowledgeable about commercially available accounting packages?
   a very low extent 1 2 3 4 5 6 7 a very high extent

9. To what extent is your company informed about providers of accounting IS training?
   a very low extent 1 2 3 4 5 6 7 a very high extent

10. To what extent has your company implemented its accounting IS plans?
    a very low extent 1 2 3 4 5 6 7 a very high extent

Organisational Knowledge Assets

In this next section we would like you to assess the various knowledge assets of the organisation. Knowledge assets are defined as the outputs of the knowledge creation process and include know-how. The questions are in the form of propositions. We ask that you give your evaluation of how accurately you feel that these propositions describe the situation in your company.

3. Please indicate how well you agree with the proposition by answering a number between **1: strongly disagree up to 7: strongly agree** (✓ or ×).

Organisational Knowledge Assets	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Employees have sufficient hands-on experience with the "*ASB*" accounting software.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Employees have sufficient accounting experience.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Employees have sufficient know-how using the "*ASB*" accounting software.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Employees are enthusiastic about using the "*ASB*" accounting system.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Employees are able to improvise as needed when using "*ASB*".	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Employees have a high level of trust the consultant.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
My company has well-organised documentation (Books, CDs, DVDs, Magazines, Web resources, Manuals) for the "*ASB*" software.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Employees have easy access to information stored in the accounting database.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Employees have sufficient knowledge (know-how) to carry out day-to-day activities related to the use of "*ASB*".	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Employees are fully aware of the importance of knowledge in the routine operations of "*ASB*".	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Employees are able to explore new knowledge using "*ASB*".	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Organisational IS Competencies

In this next section we would like you to assess your company's level of competency in various topics related to accounting IS. The questions are in the form of propositions. We ask that you give your evaluation of how accurately you feel that these propositions describe the situation in your company. If you find that any of the propositions are irrelevant, please indicate so by answering "not applicable".

4. Please indicate how well you agree with the proposition by answering a number between **1: strongly disagree up to 7: strongly agree** (✓ or ×).

Concept of Accounting IS	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
Our company has sufficient knowledge of how accounting systems can be of value to our business.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Our company has sufficient knowledge of how our main competitor(s) use accounting software to support similar business areas.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
In general, accounting software is well understood by my company.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Strategic Planning	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
Our company has sufficient knowledge of strategic planning.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Our company has a well-developed set of strategic planning techniques.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
In general, strategic planning is well understood by our company.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Sourcing Competencies	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
Our company has sufficient knowledge on outsourcing of activities to other companies.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Our company has sufficient knowledge on how to use competencies in our business partners.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Alignment Competencies	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
In my company, business and IT managers agree on how IT contributes to business value.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
In my company, there is effective exchange of ideas between business people and IT people.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
In general, my company is good at using the competencies it already has.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
In general, my company is good at using competencies represented in our business partners.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Competencies in Process integration	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
My company is actively working with the impact of the accounting IS on its business processes.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
In general, my company is good at reorganising work to utilise new information technology.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Management of IT	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
My company's IT resources are effectively managed.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
My company is good at achieving the anticipated benefits from IT investments.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
System Infrastructure	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N/A**
The systems infrastructure is very flexible in relation to my company's future needs.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
The IT systems make it possible for my company to effectively cooperate electronically with business partners.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

The Consulting Firm

Interview Protocol

Part A – Company & Personal Information

1. Tell me a bit about your company?

   - Number of employees: .....
   - Type of clients (manufacturing, service, etc).....
   - Size of clients (number of employees)…….....

2. What type/category of consultancy would you categorise your firm as?

   - Independent consultant [ ]
   - Vendor-consultant [ ]
   - Independent-reseller [ ]
   - Large consulting firm [ ]
   - Other (Specify): __

3. Tell me a bit about yourself and your background (education, work experience and expertise)?

   - Education:
   - Training (IT/IS/Accounting):
   - Work experience:
   - IT consultancy experience (years & number of clients): .....
   - Other experience:
   - Expertise:
     - Implementing what IS packages?
     - Providing training (IT/IS, Accounting)
     - IT knowledge (networking, hardware, etc.)

Before AIS Implementation

1. How did the project come about?

2. What were the reasons for the change to Zero?

3. Whose idea was it?

4. What accounting information system are you implementing for this project?

5 What services, tasks and duties do you expect to be performing during the course of this implementation (e.g. installation, configuration, integration, specific training, workshops etc)?

6 What specific tasks will be involved in the installation process?

7 What specific tasks will be involved in the configuration process?

8 What specific tasks will be involved in the integration process?

9 What tasks will be involved in the training process?

10 What do you intend to teach/what knowledge do you intend to transfer to the employees of the company?

- Knowledge regarding Accounting
- Knowledge regarding Accounting IS
- Business practices
- Any other. Explain.

11 How do you intend to go about sharing or transferring knowledge to members of the organisation?

After AIS Implementation

1 What services, tasks and duties did you perform during the implementation (e.g. installation, configuration, integration, specific training, workshops etc.)?

2 What specific tasks were involved in the training process?

3. What other methods, apart from training, did you use to transfer knowledge to the employees of the organisation?

4 What did you teach/what knowledge was transferred to the employees of the company?

- Knowledge regarding Accounting
- Knowledge regarding Accounting IS
- Business practices
- Any other. Explain

5 How important was the transfer of this knowledge to the outcome of the project? Why?

11.3 Appendix C

11.3.1 My Role As Researcher

The influence that one has over data collection and interpretation, as a researcher, should not be neglected when conducting research. This is especially so when the researcher is the research instrument. Many qualitative research designs involve the researcher being the research instrument to varying degrees, however the research still needs to be aware the impact that their presence has as an interviewer as well as an interpreter on meaning and sense making with respect to the data collected. In this appendix I reflect on the journey of collection data during this research and discussion the impact that my role as a researcher has on the data and subsequent finding of this study.

The interview questioned used throughout the three data collection phases of this study are best described as semi-structured in nature. An interview protocol was used to ensure that the same questions were asked at each participating SMEs and consultant. However, as the interviewer it is important to understand how you understand the responses and the actions of the interviewee. The way how they may answer in one way but their actions strongly suggest another response or how they may feel intimidated by a particular question and provide a less than 'honest' answer. Additionally and the one analysing the data you need to be aware of how you see and understand the world and what you determine as acceptable knowledge. The latter has already been discussed in chapter three of this document but is briefly mentioned here to highlight how ones philosophical stance may influence the interpretations and sense making of the data.

In essence when conducting interviews the researcher is the research instrument. This was very evident during this study. In fact the importance of a pilot investigation became very apparent when conducting this study. It became obvious that what I understood a particular question to be asking those being asked understood a completely different way. This meant that as a researcher I needed understand the topics, issues and even terms the way participants in the study would understand them. In other words I had to learn to speak their language. This is a bit more challenging that it sounds especially in the field of IS where there is much jargon. It was also challenging because owner/managers of SMEs (as defined by the study) were found to be less knowledgeable about IS/IT than originally assumed. Nonetheless the pilot study served to bring this issue up and provide a way for me as research to immerse myself into the world I was about to study.

Once the meaning of questions had been addressed I realised that as much as it was important for the interviewees to understand the questions being asked of them it was equally important that I understand their responses. Although the semi-structured nature of the questioned helped in the exploratory stages there was a need for a more open discussion rather than a question and answer session. Therefore, it became imperative that I listen and understand what was being said not only in words but also in the actions and phrases used to convey meaning. Recording the interview sessions allowed the discussions to be easily recalled verbatim but it did not and could not capture the facial expressions and hand motions that helped to express the meaning of what was being communicated. To some extent even the tones using during the conversations were not clearly captured by the recordings. This meant that as the research instrument such things needed to be captured by me. It was necessary for me to pay attention to the environment, to everything that was going on around me and capture the facial

expressions, the hand motions (body language) and even the tones used by interviewees when answering questions.

Having paid attention to the unspoken communication it is important to examine the analysis and interpretation of data. It became very obvious early on that the philosophical stance that a researcher adopts has a significant influence on how data is analysed and interpreted. If ones see knowledge as object then what one interprets from the data will support such a stance. For example in this study knowledge as object is see when the study examines knowledge assets and IS competencies. If as a researcher one sees knowledge as socially created then such will dominate the analysis and interpretation of data. In this study socially created knowledge is considered when looking at the creation/transfer of knowledge from consultant to SMEs as well as the development of the relationships between consultants and SMEs. Justifiably that is why the stance adopted in this study is pragmatic. A pragmatic approach allowed for all the various concepts to be considered together. Therefore as a researcher understanding how my philosophical stance affects the understanding of data is very important. And for this study my stance as pragmatic helped very much to understand the lived reality of Consultants and SMEs.

11.4 Appendix D

11.4.1 Transcripts

The transcripts are provided on the attached CD